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THE EVOLUTION OF AMBRYM KINSHIP[1]

ROBERT AND BARBARA LANE

THIS ESSAY has two major objectives: (1) it explores possible antecedents of the six-section Ambrym kinship system which has received considerable attention in the literature, and (2) it suggests a new way of looking at cross-cousin marriage regulations and at preferential rules of sister-exchange. Several of the ideas presented here depart radically from traditional views on these topics. We submit that the problems under discussion merit fresh scrutiny and that this essay will have served its purpose if it stimulates a reëxamination of relevant data from other areas either to support, amend, or counter the hypotheses offered here.

Double descent with true bilinear kin groups or sections is typical of Australia and has been reported or inferred in several parts of Melanesia. The six-section system reported for Ambrym, New Hebrides has been interpreted by Barnard, Deacon, Layard, Murdock, Radcliffe-Brown, and others as an aberrant form of the section systems known in Australia. It has been assumed by most writers that the six-section system of Ambrym and the eight-section systems in Australia represent divergent developments from a four-section arrangement based on intersecting patrilineal and matrilineal moieties. The assumption that a four-section system underlies the present Ambrym system rests on sporadic reports of mother's brother's daughter marriage in the New Hebrides (and elsewhere in Melanesia) and on analogy with Australian material. No one has as yet demonstrated the means by which such a development may have taken place.[2] We present here a theoretically

1 This essay has been read in manuscript by Drs Guiart, Layard, Murdock, and Spoehr. We wish to thank them for their interest and penetrating criticisms. Convinced by our own reasoning, we have chosen to disregard certain suggestions. For our intransigeance we ask their forebearance and for the stimulation we have received we express our sincere gratitude. We are indebted to the Social Science Research Council for a grant-in-aid of this research.

2 Layard has made the only attempt to our knowledge. His material is discussed later.

possible, and in our opinion probable, course of development of Ambrym kinship from a four-section base through an intermediate phase to the system described by Barnard and Deacon. Our outline of the evolution of Ambrym kinship is necessarily hypothetical since the earlier stages are no longer extant. Nevertheless, we believe that internal evidence, primarily in the form of anomalous kinship terminology, strongly supports the reconstruction.

If the reconstruction of Ambrym kinship presented here is valid, it offers leads for the discovery of section systems elsewhere in Melanesia and it should throw light on the history of certain Australian systems. The Ambrym material raises important questions regarding the temporal and functional interrelationships of Kariera- and Karadjeri-type systems. Since the methodology employed in the analysis of Ambrym kinship is equally applicable elsewhere, it should be possible to check the hypotheses offered here by examining Australian and other Melanesian data from the same point of view.

The analysis of Ambrym kinship presented here, although stimulated by field research on the neighboring island of Pentecost, does not rest upon field data collected by the present authors. On south Pentecost we studied a double descent system similar to that reported for north Ambrym.[3] A narrow strait divides north Ambrym from south Pentecost. There was aboriginally and there still is at present considerable contact and some intermarriage between natives in the two areas. Linguistically and culturally south Pentecost is more closely affiliated with north Ambrym than it is with north Pentecost. It was in an attempt to elucidate certain problems in the south Pentecost data that we turned to the Ambrym reports and began the analysis that resulted in the reconstruction offered here. Although we made several brief visits to Olal and Magam in north Ambrym to confirm specific points in question, the present analysis relies primarily on field data collected from the north, west, and southeast coasts of Ambrym by Rivers, Barnard, Deacon, and Guiart. Since much of this material is in manuscript form and not readily available to the general reader, the major part of our discussion will rest upon the published report of a six-section system at Ranon, north Ambrym.[4] Where it is necessary to draw upon manuscript materials, the relevant data will be reproduced here and the

3 The authors did ethnographic field work in the New Hebrides in 1953-54 supported by Fulbright grants and under the auspices of the Australian National University.

4 Deacon, 1927.

5 We wish to thank the following persons and institutions for their coöperation in making available to us and permitting us to excerpt from unpublished manuscripts: Professor T. T. Barnard, Devon, and the Librarian, Cambridge University (Barnard ms.); Dr Jean Guiart, Paris (Guiart ms.); Mr C. R. H. Taylor, Librarian, Alexander Turnbull Library, Wellington (Hocart

source indicated.[5] Hereafter, when reference is made to "the present Ambrym system," we mean the system described for Ranon (see map, Fig. 1).[6]

Our procedure will be as follows. We will present the Ranon system as reported by Deacon and deal with the difficulties which he and his editors noted, but were unable to explain. Next we will discuss other inconsistencies in Deacon's data which neither he nor his editors noted. The latter seem to us to be explicable in terms of a prior system which, once inferred from the present anomalies, solves certain logical problems in the theoretical literature. Third, we will examine evidence for an underlying four-section system in Ambrym and show how such a system could lead directly to the hypothesized system. In brief, we will proceed from the present Ambrym system to an hypothesized prior system, and then to a basic four-section system. At each step we will suggest both the reason for the transition and the means by which it was accomplished. Finally, the implications of this reconstruction, for the area and for theory will be examined.

THE PRESENT AMBRYM SYSTEM

Residence in Ambrym is patrilocal with considerable, but probably not invariable, village exogamy. Descent is reckoned patrilineally with respect to sib membership and matrilineally with respect to moiety affiliation. An individual belongs to the same sib as his father, but to his mother's moiety. Both the patri-sibs and the matri-moieties are exogamous, so that each sib is divided in half, according to the moiety affiliation of its members. Alternating generations of sib members in any one local descent line belong to opposite moieties. Since three intermarrying sibs are recognized in any one area, the simultaneous recognition of moiety affiliation creates six sections. In north Ambrym the moieties are called *batatun*, and in the Olal region at least, they are named *buley* and *tabi* respectively. The sibs are called *bwelem* and there are an indeterminate number of these scattered through north Ambrym. The sibs are named for the plant or animal with which each is associated and also for the reputed place of origin. The sections are apparently unnamed, but according to Deacon they are referred to as *wor*.

Since both the sibs and the moieties are exogamous, a man may marry neither

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ms.); and Dr A. C. Capell, Anthropology Department, Sydney University (Paton ms.). Unfortunately the last came to our attention too late to incorporate Paton's kinship terminology in the comparative table. His material agrees in substance with that of other reports and in our opinion provides further support for the present analysis.

6 Guiart reports that the six-section system does not appear to function in those parts of north Ambrym which he investigated in 1950. It is possible that the system described by Barnard and Deacon no longer survives. In that event our phrase "the present Ambrym system" should be understood in the usual sense of the "ethnographic present."

FIG. 1. Ambrym, New Hebrides, showing localities significant for the text. (An insert of the New Hebrides group appears in the upper left corner; Ambrym is central in the eastern section.)

a woman of his own sib nor any woman of his moiety. He is also prohibited from marrying a woman of his mother's patri-sib. In consequence, he may marry a woman of only one section, that is, a woman of the same sib and moiety as that of his father's mother. According to Deacon, the preferred marriage mate in Ambrym is the mother's brother's daughter's daughter. Real or classificatory relationship to this individual may also be traced in other ways.[7] We have shown elsewhere[8] that although at first appearance marriage with mother's brother's daughter's daughter seems to mean that a man marries a woman of the generation below him, this can in fact be true only for one-sixth of marriages. Sororal polygyny, both real and classificatory, occurs. Sister-exchange marriage is practised and this also may involve own or classificatory sisters. The six-section system with sister-exchange marriage is diagrammed in Figure 2.[9] The levirate is optional, dependent upon mutual consent of the parties concerned.

Bride price consists of pigs, mats, and food. Among the Christian natives this is now supplemented with, or entirely supplanted by payment in money. The marriage of immature children may be arranged by their families and gifts sent by the boy's family to that of the girl over a period of years. The final payment is made at the marriage ceremony (usually after the girl is nubile) to the father of the bride who immediately distributes it among his sib-mates.[10]

The kinship terminology of Ranon reported by Deacon is given below. The system is characterized by extensive use of the classificatory principle. That is, people related to ego in several different ways may be called by the same relationship term. Distinctions of sex and generation are often ignored in the application of kinship terms. Sex distinctions are terminologically differentiated only in ego's generation and in the first ascending generation. They are ignored in the second ascending generation and in lower generations. Thus mother's father and mother's mother are called by a common grandparent term; son and daughter are called by a common child term; sister's son and sister's daughter are called by a single term; and daughter's son and daughter's daughter by a common grandchild term. Generation differences are ignored in several instances: son's wife (m.s.) is called by

7 Specifically, in the Ranon system, MBDD may also be FSiDD, MMBD, MFSiD, FMBSoD, FFSiSoD, et cetera. For an exposition of this point cf. Lane and Lane, 1956. As a shorthand notation the relationship is henceforth abbreviated to MBDD.

8 Lane and Lane, 1956.

9 The method of presentation employed in Figures 2-6 is borrowed from kinship diagrams in Layard, 1942.

10 For information regarding bride-price we are indebted to Guiart who has made the only systematic ethnographic studies on Ambrym. His unpublished manuscript contains more details on bride-price. The reader interested in kinship behavior such as avoidance, respect, and joking relationships is referred to Guiart, 1951, pp. 38-39.

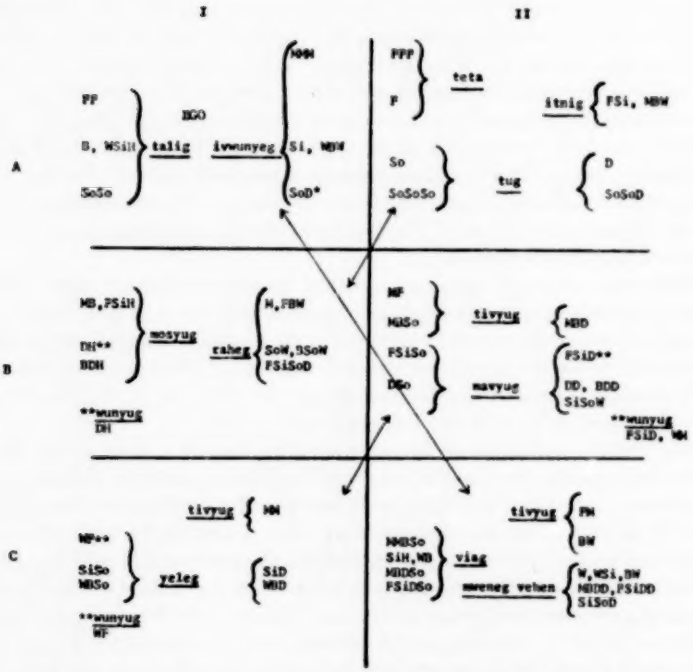

FIG. 2. The six-section system with sister-exchange marriage diagrammed for a male ego. A, B, C, represent three patri-sibs. I and II represent the matri-moieties. Male ego marries MBDD. Arrows indicate intermarrying sections. *SoD term not recorded by Deacon. **indicates two terms reported for same relationship.

the term for mother; father's sister's children are called by the term for daughter's children. Reference to the list of kinship terms will provide further examples.

We noted above that persons related to ego in several different ways may be called by the same relationship term. It seems useful to distinguish two different sorts of cases to which this statement applies. First, with sister-exchange marriage, mother's brother's wife and father's sister are (or may be) the same person; likewise father's sister's husband and mother's brother. Consistent with this, each pair is called by a single relationship term. In these instances, a single term is used for distinct relationships to ego, but in practise these relationships actually coincide.

In addition to the above, relationships traced to ego in different ways, but which can never be represented by the same person, are also referred to by a single term. As examples: father's father, son's son, and father's brother's son are all referred to by the term used for brother. Son and brother's son are called by a single term. Mother and son's wife are called by a single term as are mother's mother's mother, sister, and son's daughter. These cases are illuminated by reference to Figure 2 in which it can be seen that the persons related to ego who are called by a single term are members of a single section. In other words, the term used for one member of a section is extended to other members of the same section, except where distinction of sex and/or generation results in several terms being applied to members of one section.

In ego's own section all men are referred to by the term for "brother" and all women are "sister." In ego's father's section all men are "father" or "child" (son); all women are "father's sister" or "child" (daughter). In ego's mother's section all men are "mother's brother"; all women are "mother." In ego's mother's father's section everyone is either a "grandparent" or a "grandchild." In the section of ego's sister's children everyone is either a "grandparent" or a "sister's child." In ego's wife's section everyone is either a "grandparent," "wife's brother," or "wife."

In a section system where a single kin term is extended to co-members of the same section, we expect to find one or two kin terms used for members of each section and conversely we do not expect to find the same kin term applied to individuals who belong to different sections. The Ranon system meets these theoretical expectations fairly well. Deacon recorded thirteen kinship terms for a male speaker and these are distributed among six sections as indicated above. Eight of these terms distinguish the sex of siblings (i.e. father-father's sister; mother-mother's brother; brother-sister; wife's brother-wife), who, of course, are in each case members of the same section. Each of these four pairs of terms is used only for members of one section. One of the remaining five terms, *wunyug* is used for people of several different sections. This runs counter to normal expectation, but it should be noted

TABLE 1

Kinship terms for Ranon as reported by Deacon

13 terms for male speaker	
Consanguineal terms	
tivyug	mother's father; mother's brother's son
	father's mother; mother's mother; mother's brother's daughter; brother's wife
teta	father; father's father's father
itnig	father's sister; mother's brother's wife; brother's daughter (probably error–see text)
mösyug	mother's brother; father's sister's husband; daughter's husband; brother's daughter's husband
raheg	mother; father's brother's wife; father's sister's son's daughter; son's wife; brother's son's wife
talig	brother; father's father; son's son; wife's sister's husband
ivwunyeg	sister; mother's mother's mother; wife's brother's wife
tug	son; son's son's son
	daughter; son's son's daughter
yeleg	sister's son; wife's father; wife's brother's son
	sister's daughter; wife's brother's daughter
mavyug	daughter's son; father's sister's son
	daughter's daughter; father's sister's daughter; brother's daughter's daughter; sister's son's wife
Affinal terms	
mweneg vehen	wife; wife's sister; brother's wife; father's sister's daughter's daughter; mother's brother's daughter's daughter; sister's son's daughter
viag	sister's husband; wife's brother; father's sister's daughter's son; mother's mother's brother's son; mother's brother's daughter's son
wunyug	wife's father; daughter's husband
	wife's mother; father's sister's daughter

12 terms for a woman speaker*	
Consanguineal terms	
tivyug	mother's brother's son; daughter's husband
	mother's brother's daughter; mother's brother's daughter's daughter; husband's sister; brother's wife
teta	father; brother's son; husband's sister's son
itnig	father's sister; mother's brother's wife; brother's daughter; husband's sister's daughter
mösyug	mother's brother; father's sister's husband
raheg	mother
talig	sister; husband's brother's wife
mweneg re	brother; father's father; husband's sister's husband

tug	son; husband's father; husband's sister's son
	daughter
mavyug	son's son; daughter's son; father's sister's son; husband's brother; sister's husband
	son's daughter; daughter's daughter; father's sister's daughter
Affinal terms	
mweneg vanten	husband; sister's husband; husband's brother; mother's mother's brother's son; mother's brother's daughter's son; father's mother's brother
revyeg	brother's wife; husband's sister
wunyug	husband's mother; son's wife

* There is one less term for a woman speaker because she does not employ *yeleg* (SiC) nor any substitute for it. A woman refers to her own child as *tug* (C) and her brother's children by the terms for F *(teta)* and FSi *(itnig)*. Although Deacon has not reported the terms for SiC, w.s., it is probable that these are called *tug* (see text).

that this term is applied only to relatives by marriage (i.e. it is an affinal term) and that each of the affinal relatives concerned is designated by a consanguineal term prior to ego's marriage. We may, then, postpone consideration of this affinal term and while restricting present discussion to consanguineal terminology still include all individuals. The last four terms are applied without distinction of sex and in all cases but one refer to members of generations lower than ego and to members of one section only. The sole exception is the term *tivyug* used for mother's father, mother's mother, father's mother, mother's brother's children, and brother's wife. This term refers to people in ego's own generation, the ascending generation, and to members of more than one section. Only two terms, then, out of the thirteen listed for male speakers, do not conform to the six-section arrangement. One of these terms is used only for affinal relationships and will be considered later. This leaves only one consanguineal term which does not seem to fit the six-section system.

This term, *tivyug*, is used for three of the four grandparents and is cognate to grandparent terms used extensively in the central and northern New Hebrides (e.g., Vao *tumbuk* which is used for all four grandparents). The father's father who at Ranon is not called *tivyug* ("grandparent") but *talig* ("brother") is a member of ego's own section in which all male members are "brothers." It seems that *tivyug* is an older grandparent term the use of which has been restricted in consonance with the development of the section arrangement under double descent. A similar thing appears to have occurred in north Pentecost where the grandparent term *sipiku* is used for all grandparents except mother's mother. In north Pentecost descent is reckoned matrilineally both with respect to moiety and to sib affiliation. Mother's mother is thus a member of ego's own sib and moiety. In consequence,

this grandparent alone is referred to by a sibling term applied to other members of ego's sib and moiety. Further support for our hypothesis that *tivyug* was previously used for all grandparents comes from lists of kinship terms collected by Barnard, Guiart, and Rivers in different parts of Ambrym (cf. Table 2). Many of these list a single cognate term applied to all four grandparents. It appears, then, that the use of the term *tivyug* represents an incomplete adjustment of older generation-type terminology for grandparents to the six-section system.

Turning to the kinship terms recorded by Deacon for female speakers, we find a total of twelve terms only three of which differ from those used by male speakers. Two of these are affinals: *mweneg vanten* ("husband") which corresponds to the *mweneg vehen* ("wife") used by male speakers and *revyeg* ("sister-in-law") which corresponds to *viag* ("brother-in-law") used by male speakers. Siblings of the same sex as the spouse (i.e. wife's sister and husband's brother) are called by the same term as the spouse concerned.

The third term used by female speakers which differs from any used by male speakers is *mweneg re* ("brother"). Sibling terminology in Ambrym consists of three terms: *talig* ("sibling of the same sex"), *ivwunyeg* ("sister" m.s.), and *mweneg re* ("brother" w.s.) *Mweneg re* is therefore a special term for female speakers directly comparable to *ivwunyeg* as used by male speakers. All of the other kin terms used by women are the same as those used by men, but it is important to note that they are not always applied in the same way. In the ascending generations a male and female ego employ exactly the same terms for consanguineal kin and the terms are used in exactly the same manner. With the exception of the special cross-sibling terminology just discussed this is also true in ego's own generation. However, in descending generations the same terms are employed differently by male and female egos. This is because the descendants of a brother and sister belong to different sibs and to different moieties. A man's children belong to his sib and to the opposite moiety. A woman's children belong to her husband's sib and to her moiety. The difference in kin group affiliation of the descendants of a brother and sister may be seen by comparison of Figures 2 and 3.

A few examples merit discussion to clarify the situation. We have already indicated that the children of a brother and sister fall into different sections. The children of a male ego (sib A, moiety I) belong to sib A, moiety II. The children of a female ego (sib A, moiety I) belong to sib C, moiety I. Consistent with this a female ego refers to members of sib C, moiety I by the child term *tug*. (The six-section system thus renders intelligible the practise whereby a woman calls her husband's father "son.") She refers to the members of sib A, moiety II by the terms for "father" and "father's sister." Hence brother's children for a female

speaker are "father" and "father's sister." A male ego refers to his children by the child term *tug* and since his brother's children belong to the same section as his own children we would expect them to be called *tug* as well. Deacon does not record a term for brother's son m.s. but he gives brother's daughter m.s. as *itnig* ("father's

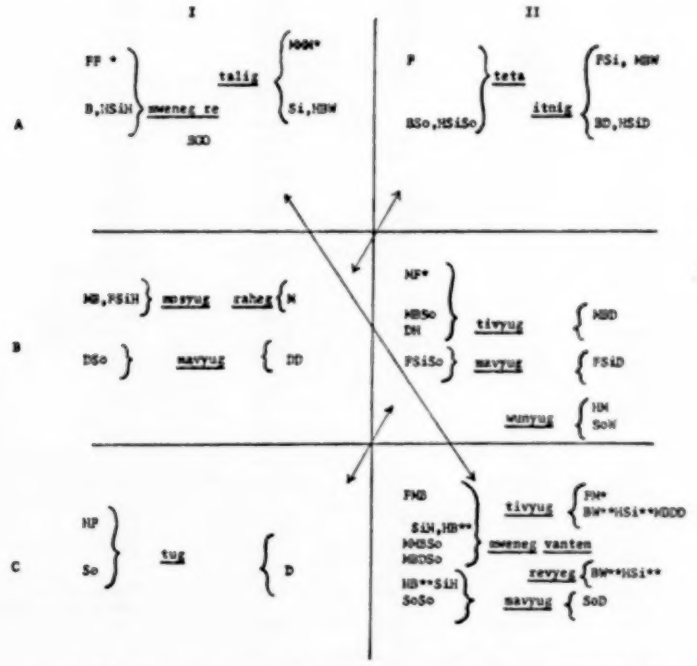

FIG. 3. The six-section system with sister-exchange marriage diagrammed for a female ego. A, B, C, represent three patri-sibs. I and II denote the matri-moieties. Arrows indicate the intermarrying sections. Female ego marries MFSiSo. *indicates term not recorded by Deacon. **indicates two terms reported for same relationship.

sister"). This may well be an error as none of the other Ambrym lists (see table) show this usage. Where brother's son and brother's daughter are shown for a male speaker, they are called by the child term (Linbul: *tun;* Fali: *netuk;* Sulol: *nutuk;* Lonwolwol: *netuk*) thus meeting our expectation. It is clear that a male speaker

TABLE 2

Comparative lists of kinship terms collected by Rivers (R), Barnard (B), Deacon (D), and Guiart (G) from different areas of Ambrym (cf. map.

	Olal (B)	Linbul (G)	Ranon (D)	Lamalwol (R)	Sulal (R)
F	tete	tĦta	tata	tata	tata
M	erehing	raheñ	raheg	rahig	rahig
Ch	'tung	tuñ	tug	netuk	nutuk
B ms	taling	tayhñ	talig	helak	nelak
B ws	maningeri	mwenhñ re yuñho	mwneg re ivuuyag	mainie-kari	mane-kuri
Si ms		tayhñ	talig	hak netahel	nak neteselew
Si ws	taling	thta		yerak	nelak (yerak)
FB		tuñ		tata	tata
BSo ms				netuk	nutuk
MD ms		tuñ	itnig	netuk	nutuk
FSW		raheñ	raheg	rahig	rahig
FBSo		tayhñ		helak	nelak
FSi	idning	hitniñ	itnig		idnak
FSiE	monong	mõoñ	mõgyug	miunak	michak
BSo ws	'tung		tata		tata
BD ws	'tung		itnig		nutuk
FSiSo ms	mabung	mabõoñ	mavyag (wunyag)	hak metelo	membiok (nak metelo)
FSiD ms	mabung	mabõoñ	mavyag		
WBCh	yaling	yalhñ	yelag		
MBSo ms	tubung	tuhthuñ (mabõoñ)	tivyag	tutu (wuruk)	tutu (muruk)
MBD ms	wurung	mabõoñ	tivyag	tutu	tutu (buruk)
MB	monong	mõmoñ	mõgyag	miunak (huruk)	michak (buruk)
SiCh ms	yaling	yalhñ	yelag	yelak (hak metelo)	yel k (nak metelo)
MBW	idning	hitniñ	itnig		idnak
MBSo ws	tubung		tivyag		
MBD ws	wurung		tivyag		
FSiCh ws	wurung		mavyag		
MSi		raheñ		rahig	rahig
MSiE		thta		tata	
MSiSo ms		tayhñ		helak	
FF ms	tubung	tuhthuñ	talig	tutu (helak)	tutu (selak)
FF ws	tubung		mweneg re talig	tutu	tutu
SoSo ms	mabung	tayhñ		helak	selak
SoD ms	mabung	yuñhñ			
FM	tubung	tuhthuñ	tivyag	tutu	tutu
SoSo ws	mabung		mavyag		
SoD ws	mabung		mavyag		
MF	tubung	tuthuñ	tivyag	tutu	tutu (buruk)
DCh ms	mabung	mabõoñ	mavyag		membiok (nak metelo)
MM	tubung	tuthuñ	tivyag	tutu	tutu
DCh ws			mavyag		
H	maning vanten		mweneg vanten		
W	maning tarind	nak ven	mweneg vehen		hak velñ
WF	woinyung	wohoñ yafu	wunyug (yelag)		wunyuk
WM	woinyung	mwenhñ metahal	wunyug (mõgyag)	miunak	
HE ms	woinyung	wohoñ vehen		idniak	wungak
WE	woinyung		tivyag		wungok (tutu)
HF	'tung		tug		
HM	woinyung		wunyug		wungak
SoW ms	erehing	raheñ	raheg		
SoW ws	woinyung		wunyug		wungok
WB	vieng	ven (nayiu)	ving		vink
SiH ms	vieng	mwenhñ metahal nayi vehen	ving		vink
WSi			mweneg vehen		
SiH ws			mweneg vanten		
HSi	revieng		revyag (tivyag)		rink

TABLE 2 (cont'd)

Pali (C)	Palogo (D)	Port Vato (E)	S.E. Ambrym (D)
tata	tata	tota	tata
raheñ (tae)	nana	nana	nana
netuk	netuk	nuruk	natukuli
selak	kŭmasian	tmeloikh	tokoli
	mambuli	menokuli	manakuli
sak meth selav	vevemukuli	sak meremeli	henokuli
	kŭmasian		
tata			
netuk			
netuk			
raheñ			
selak			
hitmak	niuk	tiniokh	tenakh
micok	nisyuk	miriok	pap
	tata		tata
	niuk		tanakh
nbubbok	vavu	tmat (nbo)	nanakh
sak mŏthlovem	vavu	tmat (nbo)	havo
		mertelo	metelma
salak	vavu	tmat (nbo)	nanakh
	vavu	tmat (nbo)	havo
micok	nisyuk	miriok	pap
yalak	netou	mertelo	metelma
hitmak	niuk	tiniokh	tenakh
	vavu		manakh
	vavu		havo
	vavu		havo
raheñ			
tata			
selak			
tutu	kŭmasian	nbo	tokoli
	vavu	nbo	tokoli
nbubbok	nembyag	nambukuli	tokoli
nbubbok	nembyag	nambukuli	
tutu	vavu	nbo	havo
	nembyag	nambukuli	havo-kuli
	nembyag	nambukuli	
tutu	vavu	nbo	havo
nbubbok	nembyag	nambukuli	havo-kuli
tutu	vavu	nbo	havo
	nembyag		havo-kuli
	nog towor	sok tuwort	anokho
	nog vavem	sok vavin	anokho
wŭkok (sak mŏthlo)	netou	mertelo	havo
	nisyuk	miriok	pap
	niuk (vavu)	tiniokh	havo
		tavian	manakh
	netuk		havo
			havo
	nana		
	vuguk	nambukuli	
	fiok (nog tevian)	tavian	matisi
	nog tevian	tavian	matisi
	nog towor	sok tuwort	anokho
	evyok		

and a female speaker would both use the child term for their own children. The section arrangement makes it clear why a man extends the term to his brother's children while a woman does not. Figure 3 makes it obvious why a woman calls her brother's son "father" and her brother's daughter "father's sister," usages which otherwise would be quite inexplicable.

We noted above that a woman applies certain consanguineal terms to different relatives from a male speaker. This is true also of the affinal term *wunyug*. Use of this term by a man speaker does not fit the six-section system in that the term is employed for members of more than one section. This is not the case for a woman speaker. The term is applied only to individuals in one section.

Two terms used by female speakers are applied to members of more than one section. These are *tivyug*, the grandparent term discussed earlier and *mavyug*, the grandchild term reciprocal to *tivyug*. Deacon does not give the terms used by a woman speaker for any of the grandparents. We may provisionally assume that they are the same as those employed by a man since differences in kin group affiliation affect only the descendants of a brother and sister, not their common forebears. As was the case for a male speaker, a female ego extends the term *tivyug* to certain other relatives. These will be considered later.

The term *mavyug* is used by a woman speaker for all her grandchildren. Since her son's children and daughter's children belong to different sections, this usage does not fit the six-section system. This situation can be explained in the same way as the grandparent term discussed previously. *Mavyug* is cognate to grandchild terms used on a generation basis in other parts of the New Hebrides. In Ranon this usage is followed by female speakers. For a male ego the position is different. Since his son's children belong to his own section, the sibling terms used for other members of this section are extended to them. Thus son's son becomes *talig* ("brother") and son's daughter becomes *ivwunyug* ("sister"). The use of the term *mavyug* for a male speaker is thus restricted to daughter's son and daughter's daughter. We suggest that both *tivyug* and *mavyug* were previously used on a generation basis for grandparents and grandchildren respectively and that this usage has been altered when a grandparent or grandchildren are members of ego's (male or female) own section.[11] In other words, with respect to grandparent and grandchild terminology, only a partial adjustment has been made to the six-section system. The adjustment has been made, as might be expected, with reference to those kin who belong to ego's own group.

11 Grandparent and grandchild terms in Ambrym are cognate to terms used on a generation basis for members of the second ascending and second descending generations in parts of Fiji and in Polynesia.

Informants appear to be preoccupied with the fact that this terminology is inconsistent with the present system. Deacon's Balap informant pointed out to him that the grandparent term *vavu* was "not straight" because it occurred in "all lines." If our reading Paton[12] is correct one of his informants indicated the same discrepancy. An informant from south Pentecost (where the use of grandparent terminology is exactly as at Ranon) made the same point: *"bibi* he go all about" (i.e. is inconsistent). Rivers' north Pentecost informants tried to point the problem out to him by indicating that *sipiku* was applied to mother's father, father's mother, and father's father while only the latter belongs to ego's moiety.

Discussion thus far has been concerned with terms which do not fit the present system because they are applied to persons of more than one section. There are two such terms for a male speaker: *tivyug* and *wunyug*. The latter affinal term will be considered later. For female speakers there are also two terms which are applied to members of more than one section: *tivyug* and *mavyug*. The above difficulties were discussed, but never resolved by Deacon, his editors, and his commentators. We believe that the foregoing explains them.

There is another sort of anomaly which to our knowledge has not been noted previously. This involves terms which do not violate the present section system but which cannot be accounted for in terms of it. Consider the situation with regard to cross-cousin terminology. Mother's brother's children and father's sister's children belong to a single section along with mother's father and daughter's children (see Figure 2). We should expect the four cross-cousins to be called by a special term, or to be called by the term for mother's father, or by the term for daughter's children. Instead, mother's brother's children are called by the term used for mother's father while father's sister's children are called by the term used for daughter's children. Thus mother's brother's children are classed four generations above father's sister's children. Since with sister-exchange marriage (which Deacon reported) father's sister's children are at the same time mother's brother's children (because mother's brother marries father's sister), the terminological distinction between cross-cousins requires an explanation.

THE PREVIOUS AMBRYM SYSTEM

Since asymmetrical cross-cousin terminology is inconsistent with sister-exchange marriage, the marriage rule may be a recent innovation and the cross-cousin terminology may reflect an earlier system without this marriage rule. On the basis of this assumption we have worked out a hypothetical system of three patri-sibs intersected

12 Paton, 1954, p. 59.

by two matri-moieties without sister-exchange marriage (i.e. the Ranon system without the present marriage rule). This is diagrammed in Figure 4.

In this system a man marries a woman of the section in the opposite moiety

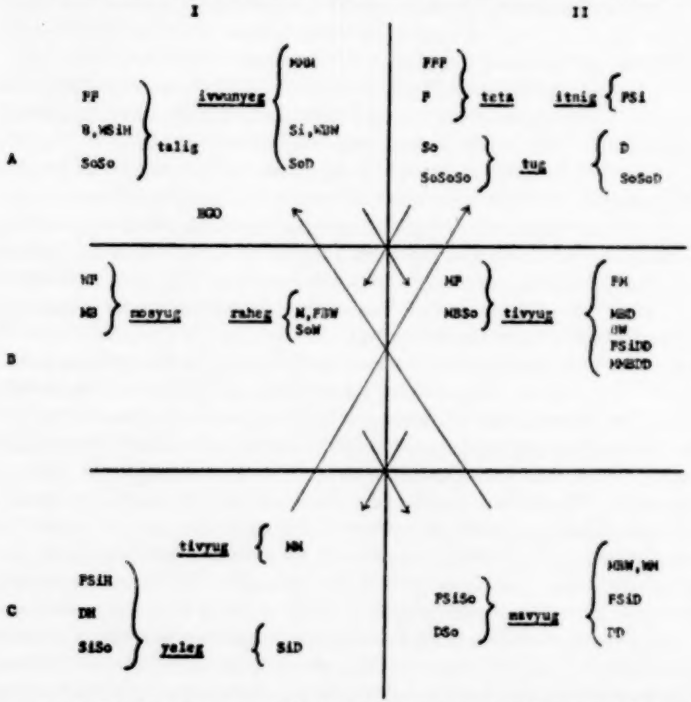

FIG. 4. The six-section system *without* sister-exchange marriage diagrammed for a male ego. A, B, C, represent three patri-sibs. I and II denote the matri-moieties. Arrows point to the section from which the wife comes. Ego marries MBD.

belonging to his mother's patri-sib. In such a system mother's father and mother's brother's children belong to one section while father's sister's children belong to another section along with daughter's children. Thus mother's father and mother's brother's children are equated and these are differentiated from father's sister's children who are in turn equated with daughter's children. The present seemingly inexplicable terminology fits this situation.

It will be noted that in the reconstructed system, a man marries his mother's brother's daughter. The prescribed marriage mate in the present system is mother's brother's daughter's daughter. It has been suggested elsewhere that marriage with mother's brother's daughter's daughter came about because a previous rule of marriage with mother's brother's daughter was prohibited. This hypothesis has never been questioned, but neither has it ever been confirmed. The above reconstruction, by removing sister-exchange marriage, accounts for two anomalies of the present system. It accounts for the curious cross-cousin terminology and at the same time provides a system in which marriage actually was with mother's brother's daughter. Both of these points lead us to think that the reconstruction has validity.

The next question is why sister-exchange was adopted. It has generally been assumed that patrilineal descent is more recent than matrilineal descent in this region. A growing importance in patrilineal reckoning would normally lead to extension of incest taboos to the patri-sib of the mother as well as that of the father. If incest taboos were extended to the mother's patri-sib, then marriage with mother's brother's daughter would no longer be permitted. Where this has happened in Australia, the shift has normally been to marriage with mother's mother's brother's daughter's daughter. Under a system of only three intermarrying sibs as in Ambrym, mother's mother's brother's daughter's daughter belongs to mother's patri-sib and therefore would not be an alternative marriage mate.

With three patri-sibs, if marriage is forbidden into ego's father's sib and into ego's mother's patri-sib, only one sib remains. If men of each section marry women of the section in the opposite moiety of the sib which is neither their father's nor their mother's, then sister-exchange marriage results. That is to say, a man marries a woman of the same section to which his sister's husband belongs. With only three inter-marrying sibs, no other solution seems workable.

This reconstruction thus appears reasonable from two points of view. First, it accounts for two anomalies of the present system. Second, given the system as we have reconstructed it, if incest taboos are extended to mother's patrilineal kin, then sister-exchange marriage must result. Furthermore, sister-exchange marriage is the only mechanism necessary to explain the transition from the reconstructed system to the present one.

The hypothesized system can be checked by examining the use of kin terms for other relatives by woman speakers. Any combinations which are not explained under the present system should presumably correlate with the prior system if it has validity. The hypothesized system is diagrammed for a female ego in Figure 5.

The use of the term *tivyug* for daughter's husband by a woman speaker fits this supposition. Under the present system daughter's husband for a female ego falls

into the same section as mother's father, mother's brother's children, and father's sister's children. The latter are called by the grandchild term *mavyug* and the former are designated by the grandparent term *tivyug*. Since daughter's husband is of the generation lower than female ego, or at most, of her own generation, we would

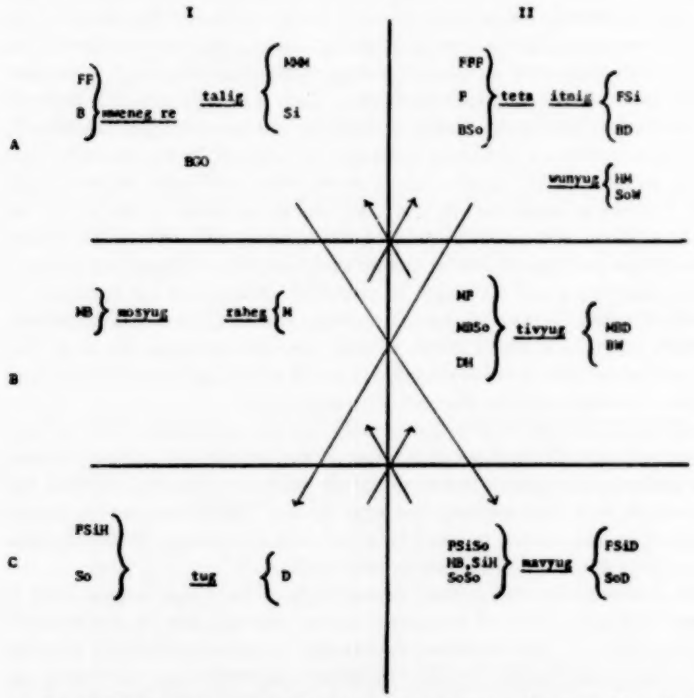

FIG. 5. The six-section system *without* sister-exchange marriage diagrammed for a female ego. A, B, C represent patri-sibs. I and II denote the matri-moieties. Arrows point to the husband's section. Female ego marries FSiSo.

expect daughter's husband to be classed as *mavyug*. Instead he is called by the grandparent term *tivyug*. This seemingly perverse usage immediately becomes comprehensible in terms of our hypothesized prior system. Reference to Figure 5 shows that under a six-section system without sister-exchange, female ego's daughter's husband belongs to the same section as mother's father and mother's brother's

children *(tivyug)* while father's sister's children *(mavyug)* belong to another section. Under the prior arrangement, the term *mavyug* would not have applied to any member of section B II and therefore could not have been extended to daughter's husband. This relative was designated by the same term as other members of that section, i.e. *tivyug*. The use of *tivyug* as a woman speaker term for daughter's husband thus confirms our expecations and provides additional confirmation for the hypothesized prior system.

It will be noted that under the present system a woman refers to husband's sister as *tivyug* and husband's brother as *mavyug*. Siblings are thus classed four generations apart, a point which needs clarification. With sister-exchange marriage, husband's sister becomes brother's wife. Therefore we may expect that the term for brother's wife will be extended to husband's sister. The expectation is that the term for brother's wife will be extended to husband's sister rather than vice versa for the following reasons. We assume that kin terms for close consanguineal relatives are extended to less closely related persons rather than the reverse. Affinal relatives who are connected to ego's consanguineal kin will be reckoned closer to ego than those who are not. Therefore, kin terms used for affinal kin connected to ego through ego's consanguineal relatives will be extended to "equivalent" relatives who are consanguineal kin of persons connected affinally to ego, rather than the reverse. If this reasoning be accepted, it follows that husband's sister under the present system is called *tivyug* because this is the term employed for brother's wife. The question then is to determine why this term should be used for brother's wife. Since brother's wife is of the same generation as ego, or in some cases of the descending generation, it would seem more reasonable for this individual to be called *mavyug*. Our reconstructed prior system again provides a solution. Without sister-exchange marriage, brother's wife belongs to the same section as mother's father, mother's brother's children, and daughter's husband, all of whom as we have seen are called *tivyug*. It will also be noted that under the prior system, husband's brother along with sister's husband belongs to the section of son's children *(mavyug)*. We thus have a solution to the seemingly inexplicable situation of husband's brother and husband's sister being classed four generations apart.

All of the difficulties in consanguineal kin terminology as employed by a female ego are explained by the reconstructed system wherein sister-exchange marriage was not practised. As noted earlier, affinal terminology for a woman speaker fits the present system. (It also fits the prior system.)

Returning to terms used by a male speaker, we noted that the hypothesized system resolved all problems regarding consanguineal terms. However, there is still the matter of the affinal term *wunyug* which does not fit the present system. This term is used by a man for wife's mother, father's sister's daughter, wife's father,

and daughter's husband. Of these, only wife's mother and father's sister's daughter belong to the same section. At first glance, it could appear that the term used for wife's mother is extended to father's sister's daughter because father's sister's daughter's daughter is marriageable under the present system. Certainly this usage is consistent with the present marriage rule. However, if this were the full explanation we should expect that the term for wife's mother would also be extended to mother's brother's daughter since her daughter is equally marriageable under the present arrangement. This usage is not reported. Reference to our hypothesized prior system again resolves the difficulty. Under our six-section system with asymmetrical cross-cousin marriage, ego marries mother's brother's daughter but is prohibited from marrying father's sister's daughter. Reference to Figure 4 reveals that under this system, mother's brother's daughter and father's sister's daughter's daughter belong to the same section. Mother's brother's wife (i.e. wife's mother) and father's sister's daughter are co-members of another section. This state of affairs is consistent with the classing together of wife's mother and father's sister's daughter (but not mother's brother's daughter). The extension of the term *wunyug* to father's sister's daughter is thereby satisfactorily explained. We are left with the problem of why this term should be applied to wife's mother, wife's father, and daughter's husband, each of whom belongs in both the present system and in the prior system to a distinct section.

Clearly, the use of one term for both of wife's parents can never be explained under a section system since a married couple always belong to different sibs and opposite moieties. We can only assume that this usage, like the grandparent-grandchild terminology relates to a previous generation-type system.[13]

THE FOUR-SECTION SYSTEM

It remains to be seen whether the extension of the term *wunyug* to daughter's husband can be understood in terms of any section arrangement. It seems possible that if anomalies in the present system can be explained by reference to an hypothesized prior system, then anomalies left unexplained by either may represent survivals from a still earlier system. It also seems reasonable that the six-section arrangement did not arise full-blown. It appears likely that it developed from a simpler arrangement. It has been suggested elsewhere that a four-section system may underlie the six-section division. Figure 6 diagrams a four-section system with sister-exchange for a male ego. Under this system a man marries either his mother's brother's daughter or his father's sister's daughter. The two relationships may be

13 The Ambrym parent-in-law term is cognate to terms used for the same relatives in parts of Fiji and Polynesia.

traced to the same person. Given this system, wife's father and daughter's husband will belong to the same section. This suggests a possible solution to the problem of why daughter's husband is called *wunyug*. However, without additional confirmation, the reconstruction of a four-section system remains plausible but extremely

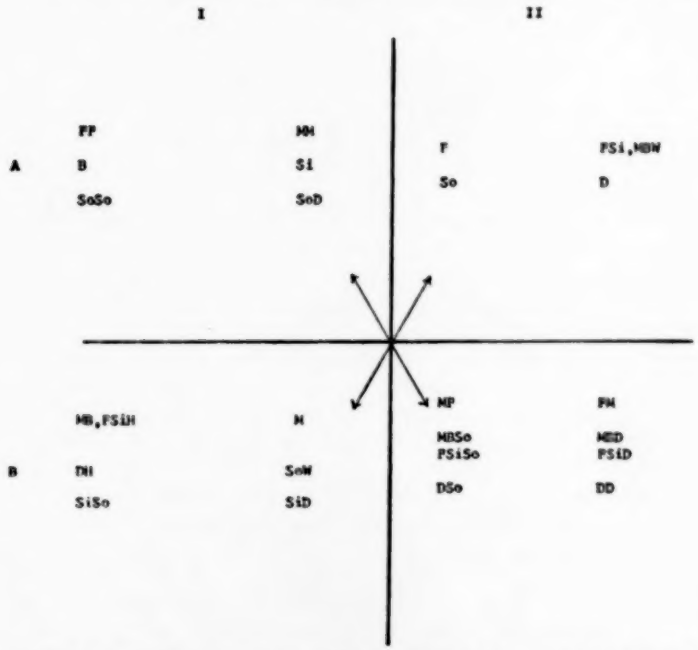

FIG. 6. Four-section system with sister-exchange marriage diagrammed for a male ego. A and B represent the patri-moieties. I and II denote matri-moieties. Male ego marries MBD/FSiD. Arrows indicate the intermarrying sections.

tenuous. Additional "evidence" in the form of anomalous kin terms cannot be adduced for Ranon since these have all been accounted for. However, some of the material from west and south Ambrym suggests a four-section system. Reference to the table shows that in Lonwolwol, Balap, and Port Vato wife's mother is called by the term used for father's sister and mother's brother's wife. It would seem that marriage with father's sister's daughter/mother's brother's daughter was prac-

tised or previously had been practised in those areas. Other terminology from the same lists supports the idea of sister-exchange marriage in the areas in question, e.g., one term for father's sister's husband, and mother's brother; one term for father's sister's children and mother's brother's children; one term for wife's brother and sister's husband m.s..[14]

It is possible to suggest logical reasons as to how and why a four-section system would have been abandoned and transformed into the six-section system without sister-exchange.

Our explanation for this transition is the same as that suggested to account for the transition from the six-section system without sister-exchange to the six-section system with sister-exchange. We assume that an extension of incest taboos is the cause of readjustment in the kinship system. Under a four-section system marriage is with mother's brother's daughter/father's sister's daughter. Incest taboos can be extended in one of two ways. Either marriage with both of the first cross-cousins can be tabooed and other persons substituted, or one of the first cross-cousins may be tabooed and marriage be prescribed with the other. Consistent with either of these developments, an additional number of sections is involved. The additional sections may be produced in one of two ways. There may be a subdivision of the existing kin groups, or alternatively, additional kin groups not previously involved may be drawn into the system. In the Ambrym case, it appears that marriage with father's sister's daughter was prohibited, while marriage with mother's brother's daughter was enjoined. In order for a distinction to be made between the two types of cross-cousin, the principle of sister-exchange marriage had to be abandoned. This could only come about with the introduction of at least two more sections: that is, the introduction of a third patri-sib. Under such a system mother's brother's daughter and father's sister's daughter no longer belong to the same sib. This is, of course, the system diagrammed in Figure 4. The extension of incest taboos to father's sister's daughter in a four-section system results in the loss of sister-exchange marriage, the introduction of an additional two sections, and thus a six-section system without sister-exchange, and prescribed marriage with mother's brother's daughter.

The following sequence is thus suggested:

(1) a four-section system composed of two patri-sibs intersected by two matri-moieties. Ego marries mother's brother's daughter/father's sister's daughter. Sister-exchange marriage is the rule.

14 The reader will note that the southeast Ambrym list appears to be the most divergent. According to Paton (1954, p. 1) southeast Ambrym is linguistically and culturally more closely affiliated with the neighboring island of Paama than it is with the rest of Ambrym.

(2) a six-section system composed of three patri-sibs intersected by two matri-moieties. Ego marries mother's brother's daughter. Marriage with father's sister's daughter is prohibited. Sister-exchange marriage is not practised.
(3) a six-section system composed of three patri-sibs intersected by two matri-moieties. Ego marries mother's brother's daughter's daughter/father's sister's daughter's daughter. Sister-exchange marriage is the rule.

Each transition is explained by a gradual extension of incest taboos. In the shift from 1 to 2 incest taboos are extended to father's sister's daughter. In the shift from 2 to 3 the taboos are extended to include mother's brother's daughter. The successive extension of these taboos draws an ever-increasing number of kin groups into the kinship circle of any single individual. In the first system, only two patri-sibs are required. In the second phase a third group is essential for the functioning of the system. However, it should be noted that men of any one sib still marry women of only one other sib, just as in the previous system. It is not until the third stage is reached that men of any one sib take their wives from two other sibs. Reference to Figure 2 shows that adjacent generations of men in any one patri-sib marry women from *different* patri-sibs. Thus in the third system each sib is directly linked with two other sibs. In the second system each sib is directly linked with only one other sib. The connection with a third sib is indirect. In the first system, only two sibs are linked.

In view of certain confusions which have developed in the literature, it is necessary to underline the fact that the foregoing are descriptions of *systems* and not of *situations*. As stated at the outset, there are at present an undetermined number of sibs in north Ambrym. In any particular area, three of these form an intermarrying set and function in the manner described for the *system*. According to native theory each sib has a distinct place of origin and each village is supposed to be exogamous. It seems quite possible that the patri-sibs developed out of exogamous patrilocal residence groups. Whatever their ultimate origin or present number, the crucial point here is that the precise number of sibs at any particular time in any particular area is irrelevant to the working of any of the systems which we have described.

This will be made clear by reference to Figure 7 in which a hypothetical area containing twelve sibs is illustrated. It can be seen how each of the three systems described operates in such an area. The diagram could have illustrated equally well an area with only six sibs. We have argued for a direct succession of these three systems in Ambrym. Presumably the differences in the lists of kinship terms for various areas (see Table 2) reflect the fact that this development was not simultaneous and uniform over the island. It seems likely that as each new system devel-

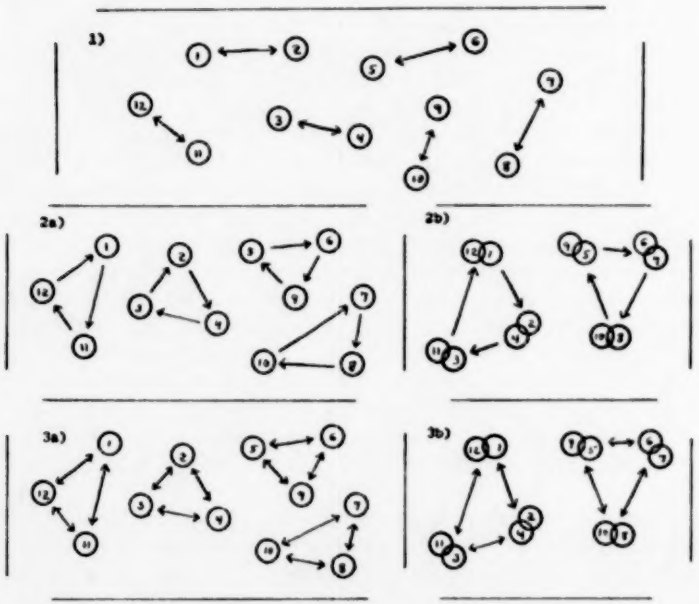

FIG. 7. The interrelationship of sibs under (1) the four-section system with sister-exchange; (2a) the six-section system without sister-exchange; and (3a) the six-section system with sister-exchange. Diagrams 2b and 3b are alternatives to 2a and 3a. Numbered circles represent twelve patri-sibs. (It should be remembered that alternating generations in each sib belong to opposite moieties.) Arrows indicate the direction in which women marry. The shift from 1 to 2a illustrates a realignment of sibs from intermarrying pairs to intermarrying sets of three, but does not explain how the realignment might be effected. 2b and 3b suggest an equation of certain sibs for purposes of matrimonial regulation. If such existed, no previous sib relationships would be terminated in the shift from 1 to 2.

oped, it tended to influence neighboring areas. As the newer systems diffused, it seems entirely possible that certain sibs were equated for purposes of matrimonial regulation. We have no direct evidence from Ambrym on this point, but this situation obtains in south Pentecost and has been reported in Australia. If it is also true for Ambrym, we have a means of adjustment which explains how the systems diffused. It might also explain how the realignments were effected in the shift from 1 to 2.

The question arises as to why a four-section system in Ambrym developed into a six-section arrangement whereas in Australia the shift was typically to an eight-section system. The answer appears to lie in the method of extending incest taboos. Given a four-section system composed of two matri-moieties intersecting two patri-moieties (or two patri-sibs) with sister-exchange marriage (ego marries mother's brother's daughter/father's sister's daughter), there are at least two ways of extending incest taboos. One way is to taboo marriage with both first cross-cousins and substitute other persons. This could come about, for example, by a splitting of the two patrilineal groups (i.e. the development of "subsections"). An alternative method is to prohibit marriage with only one of the first cross-cousins, retaining the rule of marriage with the other. According to our reconstruction, this is what happened in Ambrym. Marriage with father's sister's daughter was prohibited, while a rule of marriage with mother's brother's daughter was retained.

In order for asymmetrical cross-cousin marriage to take place, the principle of sister-exchange marriage has to be abandoned. If this happens a minimum of *three* intermarrying groups (patri-sibs in Ambrym) are required. We have suggested that the third group is introduced by the extension of the matrimonial system to encompass an additional patri-sib not previously involved (see Figure 7). Layard[15] once postulated a split in one of the two patrilineal descent groups to account for the rise of a third group. His suggestion remains a theoretical possibility, but leaves unanswered the question as to why only one of the patrilineal groups should have subdivided. Our suggested explanation avoids this dilemma and in addition, suggests a function of the extended incest taboos. In each case the scope of kinship connections is widened, thereby increasing the number of coöperating groups. Under the four-section system only two sibs intermarry. Under the subsequent arrangement, it is still true that only two sibs intermarry, but three sibs are ultimately involved in any one marriage set. That is, any one individual will have relatives in two other sibs, rather than in one other sib as previously. Under the third system, each sib is directly linked by marriage with *two* other sibs. Although

15 Layard, 1942, pp. 114-124.

the number of kin groups involved in the shift to the last system does not increase, the number of kinship ties linking any one sib with the other two is significantly increased. The shift from the four-section system to the six-section system without sister-exchange creates a wider sphere of social solidarity by expanding the sphere of kinship relations. The shift from the latter system to a six-section arrangement with sister-exchange consolidates and reinforces this solidarity by directly linking each sib with both of the others (see Figure 7).

The significant point for the development of a six-section system is that if marriage with only one of the first cross-cousins is tabooed, then only three intermarrying groups are required. If marriage is *later* prohibited with the other first cross-cousin (as we believe happened at Ambrym), then it becomes feasible to substitute other persons for *both* first cross-cousins without increasing the number of kin groups involved. This is accomplished by the reintroduction of sister-exchange marriage. Ego thus marries mother's brother's daughter's daughter/father's sister's daughter's daughter. Reference to Figure 4 will show that under the six-section system without sister-exchange, mother's brother's daughter and father's sister's daughter's daughter are co-members of one section. It seems likely that even at this stage, father's sister's daughter's daughter may have been a possible marriage mate. Once marriage with mother's brother's daughter is prohibited and sister-exchange reinstated, mother's brother's daughter's daughter belongs to the same section as father's sister's daughter's daughter. It is significant that under the reconstructed six-section system (see Figure 4) mother's mother's brother's daughter's daughter also falls into the section of ego's wife. As soon as incest taboos are extended to mother's patri-sib, however, and sister-exchange reinstituted, mother's mother's brother's daughter's daughter becomes a member of ego's own sib and is therefore not marriageable. Under both types of six-section system, father's father's sister's daughter's daughter is a member of ego's moiety and therefore is not a possible marriage mate.

We suggest that an eight-section system develops if incest taboos are extended simultaneously to both first cross-cousins. When marriage with only one first cross-cousin is prohibited and marriage with the other is prescribed, a six-section system develops. It should be possible to test this hypothesis with material from Australia. If Australian data support our hypothesis and the Ambrym case is not unique, then a series of questions arises regarding the nature and relationships of the varieties of cross-cousin marriage. The theoretical implications of this hypothesis are considered in a separate study.[16]

16 Lane, B., n.d.

In the analysis of grandparent, grandchild, and parent-in-law terms, reference was made to "a previous generation-type terminology." Growing evidence beyond the scope of this paper indicates an underlying generation-type kinship system in the central and northern New Hebrides. This system apparently preceded historically the development of the present systems of double and unilineal descent in these areas. We are not prepared at this time to deal with the stages intermediate between the bilateral system and the rise of double descent in Ambrym.

SUMMARY AND CONCLUSIONS

Analysis of Ambrym kinship data suggests the following evolutionary sequence: (1) an underlying generation-type system; followed eventually by (2) a four-section system with sister-exchange marriage; superseded by (3) a six-section system without sister-exchange marriage; followed by (4) a six-section system with sister-exchange marriage. Each shift in the section systems is correlated with a systematic extension of incest taboos. In every instance the extended incest taboos increase the sphere of kinship ties and thus enhance social solidarity.

We wish to reiterate at this point that the several stages in this reconstruction do not rest upon equally substantial "evidence." The prior existence of a six-section system without sister-exchange seems to us to be very strongly indicated. In other words, the shift from a system without sister-exchange to one with this preferential rule seems to us to be most convincing. Almost every one of the peculiarities of the Ranon system is explained by this hypothesis. The supposition of a four-section stage, on the other hand, rests almost entirely on logical argument with very little in the way of "facts" to support it. The distributional evidence elsewhere on Ambrym of marriage with mother's brother's daughter and indications of sister-exchange marriage may or may not be significant. It seems theoretically possible that a six-section system without sister-exchange could develop directly from a section-less arrangement. If this occurred, the existence of four-section systems in adjacent areas, even if this can be definitely established, is irrelevant.[17]

On a purely logical basis, both lines of development seem possible. It seems worthwhile to include the problematical four-section stage in this presentation because of the theoretical issue involved. If the four-section stage were left out of consideration, we would be faced with a fairly simple problem, i.e. does the shift from a section system without sister-exchange to one with this rule occur with any regularity? We are aware of several areas in Australia where systems of both types

17 The authors are indebted to Professor G. P. Murdock for drawing this problem to their attention.

are found among neighboring tribes with known historical connections. Examination of such data from the present point of view should enable us to answer the question. However, if the four-section stage of the Ambrym presentation be conceded as a theoretical possibility (and we do not at present see how it can be ruled out), then we have a more complicated problem. We are faced with the proposition that sister-exchange may exist at one period, be abandoned, and at a later period be reinstituted. We should then expect to find evidence in Australia of shifts in both directions.

The earliest stage postulated, that involving a generation-type system of kinship terminology, is not fully discussed in this paper because the evidences for its existence are largely peripheral to the area of interest here. The generation-type system is pertinent to the Ambrym data only as a possible explanation for the grandparent, grandchild, and parent-in-law terminology. It is not conceived as the immediate predecessor of the section systems in Ambrym and the evolution of the section systems is not dependent upon it.

The reconstruction of Ambrym kinship systems is arrived at primarily through analysis of anomalous kinship terminology. Kinship terms, whether survivals from the postulated generation-type system or from previous section systems, appear to be adjusted in direct relation to kin group affiliation relative to ego. Thus members of ego's own sib are all called by terms appropriate to the present system. Anomalous designations are confined to members of the other two sibs.

The evolutionary sequence outlined for Ambrym suggests a possible functional relationship of various kinds of cross-cousin marriage regulations. The asymmetrical (Karadjeri-type) phase in the Ambrym system (i.e. the previous system in which marriage is prescribed with mother's brother's daughter, but prohibited with father's sister's daughter and sister-exchange is not practised) may represent a transitional stage in the internal adjustment of a normally symmetrical (Kariera-type) system to progressively extended incest taboos.

It is further suggested that given a four-section arrangement with sister-exchange marriage, an eight-section system develops if incest taboos are extended simultaneously to both first cross-cousins. When marriage with only one first cross-cousin is prohibited and marriage with the other is prescribed, a six-section system develops.

The foregoing hypotheses and propositions should have direct bearing on the history and development of similar section systems in Australia. The formulations regarding the nature of cross-cousin marriage regulations and the reversibility of a rule of sister-exchange are of more general relevance.

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EASTER ISLAND EXCHANGE SYSTEMS

EDWIN N. FERDON, JR.

IN RECENT YEARS the Easter Islander finds himself using three techniques of trade, or exchange. In his dealings with the Chilean administrators that run his island he must use money; with tourists and ships' personnel who visit his island annually aboard the Naval transport *Presidente Pinto,* he customarily barters his wood carvings for material goods or foodstuffs not produced on the island; while with his fellow natives he uses several techniques of forced exchange to obtain the things he needs or wants during the long periods of isolation from the outside world. The lack of any trend toward the use of money as the dominant exchange medium is owing in no small way to a materially impoverished island and to a well-meaning but ineffectual administrative system which limits the usefulness of money and tends to force the continuation of primitive exchange and barter systems.

EXTERNAL EXCHANGE

Money

In the area of food production, the Easter Islander is quite capable as a subsistence farmer and fisherman, although since the initiation of active Chilean administration in 1916 he has come to regard sugar, flour, rice, and coffee imports as essential to his existence. In the realm of *indigenous manufactures,* he has become extremely limited both by reduced environmental potential and an ever-increasing dependency upon imported material goods. To obtain these necessities from the outside world he has two recourses. He may, by acquiring money, purchase on a rationed basis a limited amount and variety of items from the Naval administration's *pulperia,* or store, and/or he may barter his commercial craft output, dominantly wood carvings, to tourists and sailors aboard the annual Naval supply ship.

To obtain money the Easter Islander has, at present, two limited sources. He may work as a ranch hand on the government sheep ranch, or as a *fiscal* or government employee. In 1955, the most recent year for which near-total data are available, there were forty-eight native ranch hands and an undetermined number of part-time shearing hands whose total annual salary, not counting monthly allotments of food, came to 1,978,620 pesos or about 4,500 dollars. The administration employees *(fiscales)* numbered fourteen with a total annual income of 1,908,000 pesos. Thus, out of a male population over twenty years of age of 171, only 62, or 36 percent, were able to earn a regular wage. Aside from these salaried jobs, the

only source of any considerable money is the raising of a cash crop of corn which is salable to the island government for the fattening of pigs for lard production and export. In 1955 the Navy purchased 760,000 pesos worth of native-grown corn for this purpose. Here limited agricultural land within the native "reserve," and the secondary nature of lard production on the island, limits the potential income from this source. Thus, in the year referred to above, the amount of money entering the Easter Islander's pockets, not counting the income of a few employees at the Air Force base and minor sums derived from occasional sales of vegetables to Chileans, was 4,646,620 pesos.

In spite of the limiting factors surrounding the acquisition of money by the natives, their annual cash income exceeds by two-thirds the amount of money annually spent by them in purchasing their full ration of material and foodstuffs from the administration's store, as well as their rationed purchase of government sheep for meat. Out of a total native income of about 4,646,620 pesos in 1955, only 1,067,721 pesos were spent via the store and ranch. The considerable savings that appear to exist are not necessarily interpretable as thriftiness on the part of the native, but rather as a forced inability to spend his excess money on things that he wants or needs. As far as could be gathered, the principal outlet for this excess money is found in the occasional support of a few Easter Island children who, from time to time, are allowed to attend continental schools for a period of about one year. Money, therefore, beyond the purchasable items annually alloted to each native, has little meaning to the islander and, concomitantly, the concept of the workings of a cash economy is equally obscure.

The existence of this rather strange economic situation is due, in large part, to Chilean governmental policy. With the closing out of the British ranch company's island lease in 1954, the Chilean government designated its Navy to administer Easter Island and to run the sheep ranch and pig farm. It further ruled that the economics of running the island should be totally dependent upon the cash obtained from the ranch's export products of wool and lard. As an act of generosity to the natives, it was arranged that the store, formerly maintained by the "company," be run by the Navy, and that purchases of such goods for resale to the islanders be made at wholesale or factory prices and sold to the natives at the original purchase price. As pleasing as this arrangement may sound, it carried with it several drawbacks. Since the store was under government administration, its annual fund for the purchase of salable items was limited to a small percentage of the administration's island budget as determined by the previous year's export income. Not being a business venture, inventory was not geared to potential sale or island requirements but was, willy nilly, made to conform to its percentage of the total budget.

Since inventory has never matched sale potential, a system of rationing has been put into effect so that, although supply has never caught up with demand, at least there is equity in distribution of what is available. Aggravating this inadequacy has been the well-intentioned system of making retail prices conform to original purchase price, thus freezing out the possible introduction of privately run stores which, if introduced, would at present be scorned by the natives owing to the necessarily higher prices that would be charged for articles similar to those in the administration's store. Much as the native might want the abundance of items that such a store could give him he is, at the present time, extremely unsophisticated in the matters of a cash economy and would regard the higher prices not as a necessity of private business but as a personal effort by the proprietor to take advantage of the islander. Further complicating this situation is the fact that local salaries and prices for corn paid by the island administration have no relation to labor and produce prices in Chile, being considerably lower than on the continent.

Barter

With an apparent excess of money in his pocket it might reasonably be supposed that the Rapa-nui would use the opportunity afforded by the arrival of the supply ship to purchase clothing and other goods from the ships' personnel who invariably bring out new or used items for personal island trade. Here, however, two factors enter to negate this possibility. First, there is the islander himself who looks with suspicion upon the prices of such goods which, since they are privately offered, carry a higher price than those in the administration's store. Secondly, sailors and tourists alike are primarily interested in obtaining curios from the natives and therefore prefer bartering their goods for native carvings or, to a lesser extent, mats or feather work. Thus the islander, being unable or unwilling to purchase foreign items on shipboard, willingly resorts to the technique of barter which, owing to its being an exchange of material things, he thoroughly understands.

On only one item does the Easter Islander desire cash, and that is the unique hand carved chess sets. Here, surprisingly, the price is always fixed and stated in terms of the American dollar. This appears to be the result of an historic accident. The islander, as will be explained later, has the habit of bringing to view only one trade item at a time. According to my informants, some years ago, when the chess sets were first being made, an American yacht anchored off Hangaroa and the natives went out to trade. In the process they began exhibiting the little chess set figures one at a time and the passengers, lacking trade goods and apparently not knowing that the figures comprised parts of a set, began paying a dollar for each

small figure. Although there are thirty-two figures in a set, the sum total of a chess set came to be priced at an even thirty dollars. Of further interest is the fact that the islander will try his best to obtain American dollars for these sets, even though he is usually dealing with a Chilean, and American money is not readily exchangeable for Chilean pesos on Easter Island.

Whereas the price of the chess sets is apparently linked to the arrival of the American yacht mentioned above, the desire for American dollars which cannot be used on Easter Island is at least partially linked to a recent craze that has struck the islanders. This is an overwhelming desire to go to Tahiti. Several small groups of natives have already made this unauthorized and hazardous voyage in poorly equipped open boats without charts or compass. Although we found that the natives of other Eastern Polynesian islands also wanted to go to Tahiti, their desires were not of the compulsive sort that is found to exist on Easter Island. The reasons for this are obscure, nor was time available to study them. However, the craze has the appearance of a messianic compulsion possibly brought about through Chile's unenlightened policy which not only does not accept the Rapa-nui as a citizen, but restricts him to a small part of what he rightfully regards as his land. He is allowed to leave his island only with continental government permission — and then only for trips to Chile. This is not the place to go into the elaborate methods used in hoarding food, water, and other necessities for these unauthorized trips. Where the American dollar comes into the picture, according to my informants, is that when the first boat arrived in French Oceania they found that no one wanted to exchange Chilean pesos for French Oceanic francs but would gladly give francs for dollars. Word was sent back regarding this situation and since then the American dollar has become a collector's item which will have value if and when the collector, or anyone of his family, has a chance to make a clandestine voyage to the west.

INTERNAL EXCHANGE

Although the islander cannot be said to be suffering from an undue scantiness of essential materials, there is always a shortage of certain items, a situation which has undoubtedly existed since pre-contact days. This, in part, has resulted in the Rapa-nui of today maintaining a series of forced exchange systems among his fellow islanders, at least one of which is virtually pan-Polynesian in distribution.

Forced Gift Exchange

This is an old and widely distributed Polynesian system of exchange which has been well described for other islands. I was unable to study its operation within the

native culture, but from the observations of its workings with several of our expedition members, including myself, it follows the general Polynesian pattern reasonably well. On Easter Island it is a technique employed to obtain a desired item, usually of more than casual value, from someone beyond the extended family. In the case of myself, a wood carving, often a *moie kava kava,* would be brought to me as a gift. Upon my acceptance the native would stand around, often talking little or not at all. If my return gift was ample he would immediately thank me and leave. If inadequate, he would stay on a short time shuffling uneasily and, if I did not enrich the gift, he would finally leave without saying a word and I would not see him again. Whereas, in inter-native exchange of this sort, a direct or indirect mention of the item expected in return is probably made, all of our limited supply of trade goods was desirable, so there was seldom any effort to direct our exchange gift. In a very few cases, questioning would bring forth a reluctantly given preference, but more often than not it was left completely up to us.

Deferred Exchange

Superficially, the operation of the deferred exchange technique gives the impression that all Easter Islanders are beggars, and contrariwise all natives are "soft touches." This is a technique that may be of considerable age for, as one of the members of Gonzalez' voyage to Easter Island in 1770 says, "The principal men, as well as the women, are extremely addicted to beg, and take with gladness whatever comes to their hands, without making any return."[1]

The system's foundations appear to rest on the concept that any relatively scarce items of no great value, customarily consumable goods, are virtually community property, and available to all on request. It is not a planned exchange but rather a means of taking advantage of the moment when a particular item happens to be available. We have used the term "deferred" for this kind of exchange in that a person who requests, and receives, an object that he sees another possessing automatically accepts the responsibility of having to give something he may possess at a later date. Just when and what that object will be is again a matter of opportunity and the moment. In actual practice, a fair degree of equity is exhibited and, for example, if a man is "caught" with a string of fish he will try to apportion his catch as evenly as possible among all of those who approach him.

At the time of the arrival of our expedition, the islanders were out of cigarettes and these became a constant element of exchange through this technique. For example, when Dr Mulloy and I began our excavations at the south end of the

1 Don Felipe Gonzalez, *The Voyage to Easter Island in 1770-71* (Translated by B. C. Corney: Hakluyt Society, series 2, vol. 13, Cambridge, 1908), p. 98.

island, we employed a total of twenty natives. Thor Heyerdahl, the expedition's leader, had arranged a labor payment on the basis of a certain sum of money and food, plus ten cigarettes per day per man. The first day that we assembled our workers at Mataveri we passed out the ration of cigarettes. No sooner had each man received his quota when an old native policeman went down the line of workers and requested two cigarettes from each of them. Although the cigarettes were often given reluctantly, each man complied with the policeman's request. Many natives, knowing that another had cigarettes, would ask for only a single cigarette, but others would ask for more, a typical request being for another cigarette for the "ear," or for one's wife. Jorge Tepano, my chief informant, complained one morning that one of the natives had abused the system somewhat by not only asking for a cigarette to smoke but one for each of his ears. Jorge had publicly chided him by asking if he did not want one for each coat pocket as well. In the end, however, Jorge said he did not care too much, for the time would come when he would ask for a large quantity of something else and the man would have to give it to him.

Although the deferred trading of cigarettes tended to overshadow other items because of the expedition's policy of partial payment in this medium, there were other items that, from time to time, were also exchanged in this manner. Thus, on one occasion my men, working at the site of Orongo on the edge of Rano Kao crater, came to notice that the community-owned grapes at the bottom of the crater were ripe and immediately after work, they went down and picked a large bag of them. The following morning they laughingly complained that upon reaching Hangaroa they found that others had learned that the grapes were ripe and, suspecting that the Orongo laborers had picked them, they asked for some. So many had requested grapes that my workers were finally forced to give each a small branchlet, ending up with almost none for their families. A more common item regularly dispersed through the deferred exchange technique is fish. There are not too many good fishermen among the present population of the island, so that they are often forced to distribute the great majority of their catch.

As with all trading techniques, there must be certain limits and controls. On Easter Island the three dominant controls in deferred trading are deceit, avoidance, and the rigid etiquette patterns surrounding the availability to others of one's pockets, wrapped packages, or the ever-present cloth side-sack or bag. For anyone, other than a member of one's extended family, to attempt to look into another's pockets or bag or to open his parcel, is a breach of etiquette nearly tantamount to attempted robbery. A delicate line also appears to exist in a non-relative asking for something that he believes you have on your person. I could not determine the precise nature of this etiquette pattern, but it would appear to be that if one has

no logical idea of what another may have on his person he does not have the right to ask him and, if the person be asked, he need not tell the truth. On the other hand, if one is certain that a man has a particular product on his person and can make a logical case for it, then social force requires him to share it with the one making the request. A few examples will give the range of this procedure.

One morning, while riding up the volcano of Rano Kao, my workmen encountered a native coming down the mountain carrying a well-filled gunny sack. They stopped the man and exchanged a few niceties and then went on their way. At no time did they ask about the contents of the bag, but all during the day's work they discussed the matter and by quitting time they had come to the conclusion that the man had been carrying grapes. They immediately went into the crater to gather the newly ripened crop, which is common property. The following day they reported with considerable triumph that their deductions had been correct.

In another instance, I had brought some chocolate bars from our expedition's camp in Anakena. After work I had three of my men wait outside my room while I called in Jorge Tepano, my foreman, and, giving him the candy, asked him to distribute it evenly among the four of them. Opening the door, Jorge suddenly noted that the government store, past which he and the other three men would have to ride, was open and a number of natives were standing around awaiting their month's ration of foodstuffs. Jorge was without his side-sack, and so he closed the door and asked me to wrap the candy in a paper bundle, explaining that if it were not wrapped and he rode by the store, the other natives would see it and he would be forced to give away the greater part of it. Having rolled the sweets up in a newpaper, Jorge had no further compunction about opening the door and walking by the natives with his cargo of chocolate, which he later distributed as the four men rode the short distance between Mataveri and Hangaroa.

In connection with cigarettes, on the occasion when the native policeman had taken his toll on the first morning of distribution, the men requested that henceforth they wanted their cigarette ration distributed on the excavation. Since this was located away from Mataveri, where the policeman was, there would be no opportunity for him to ask them each morning for cigarettes. A similar avoidance technique was used on the two occasions when we met our payrolls, the men preferring to be paid in the field where the amount collected would not be observable by other than their fellow workers. In this way, even if the townspeople learned that it was pay day, they would not know how much anyone had received nor whether the bills were small and therefore dispersable under this technique, or of large denominations and therefore above the socially acceptable upper value limit

for such distribution. My own workers at Orongo, several of whom were excellent fishermen, frequently used avoidance if they had made a small catch by timing their return so that the fewest possible people would be likely to see their arrival on the beach.

Deceit, centering around the sanctity of a man's parcel, bag, or clothing, is employed wherever possible and is not only socially approved but is a form of achievement that is looked up to by others. We might further add that deception in any form, not necessarily related to trading control, has complete social sanction, the deceived being the one who loses face, while the deceiver, depending upon the elaboration of the deception and the economic value involved, gains in social stature.

A simple example of intended deceit occurred during our excavations. It turned out that after a few months of working with us our native laborers found that the townspeople had become well acquainted with not only the days when cigarettes were distributed, but the amount as well, so that when the workers returned to the village they were frequently forced to give away their entire day's allotment. In an effort to circumvent this, our laborers requested that we give them their full week's ration at one time. Their explanation was that, in so doing, when they returned to Hangaroa the villagers would keep asking them for cigarettes until the usual day's quota had been passed out, after which they would be left alone, the people not knowing of the other cigarettes remaining in the personal side-sacks. Since this new arrangement would not be immediately known, the men could lie with impunity if asked for more than the known daily ration. Although the truth of the matter would eventually become evident, no grudge would be held against them. On another occasion I watched one of my informants, to whom I had given extra presents, go to the extreme of ripping open the lining of his coat to hide the items from his companions who were awaiting him. Since his friends had reason to suspect that he might receive additional gifts, they would be in a position to ask questions. In this case the ruse was designed so that my informant could, upon continued questioning, turn his pockets and bag inside out to prove that he carried nothing with him that might interest them.

As a final control to deferred exchange, there is one geographic area where a man is free from the social pressure of relinquishing objects to non-relatives and that is his home and its surrounding lands. As long as he is in the country or on the public streets and pathways, he is open to a potential request from any passerby. However, once inside his gate he is secure from this method of trading, except where his extended family is concerned.

Steal Trading

Steal trading, so-called here because of its long history of misinterpretation as inter-native petty thievery, is an exchange technique restricted to one's extended family and *tumu*.[2] The principle upon which it seems to rest is that anything available belonging to a member of one's extended family or *tumu* is obtainable without permission, provided its rightful owner is made aware of what the object is and who is taking it. In this way equal value may be obtained at a later date and, usually, in a similar manner. The practice of this technique is always accompanied by joking and a certain amount of what we would call "horse play." That it is an ancient system is attested to by its description, though misinterpreted, by early visitors to Easter Island. Thus we read that in 1770 "they are so fond of taking other people's property that what one man obtains another will take from him, and he yields it without feeling aggrieved: the most he will do is to resist a little, then he loosens his hold of it and they remain friends."[3]

This precise observation may be made today on Easter Island, the only addition being that the practice would be described as being limited to members of an extended family and *tumu*. In this particular case, i.e. beyond a man's home, there is a subtle difference between a non-relative obtaining an item and a relative. The former must ask for the object, if it is not too valuable, while the latter may simply wrest it from his relative without such formality.

In steal trading one may take an object from any relative, whether it is in his home, on his property, or on himself. The previously mentioned etiquette taboos surrounding the wrapped parcel, shoulder bag, etc., do not apply completely to members of the extended family. They may, if they can, extract an item from a member's bag or pocket. If caught in the act of attempting to pick one's pocket the culprit can be stopped, but if he has gone far enough to actually take hold of an object the owner will give only a token resistance and then laughingly let him have it. Among friendly relatives minor "stealing" of cigarettes and the like may be carried on at some length during working hours as a form of amusement. During our Orongo excavations my small labor force, all related, kept up a constant round of such activity during the lunch hour as a means of diversion. However, steal trading is a functionally important method of obtaining scarce necessities and is primarily a serious trading mechanism in which the covetousness of the owner, if existing, is forced to be masked by the social requirement that he laugh at the incident.

Nothing observable in a man's home is secure from relatives. It is not uncommon

2 A *tumu* is a group of lineages.

3 Gonzalez, *loc. cit.*

for a native to enter a relative's home and, when his host is not looking, grab an item and run to the door. Upon reaching the door, however, he must stop and laughingly show the purloined object to his host, who, all my informants agree, can only laugh back and let the man and the object go. The need for the original owner to know what object has been taken, and by whom, is paramount in this technique, for in this way he may take mental note of who owes him what, or its equivalent in value.

Such intra-familial steal trading reaches its climax of activity when the natives go out in their boats to meet the Navy supply ship, or any other ship that may anchor off Hangaroa for a short period. This is when the islanders load their shoulder bags with wood carvings for barter. On the trip out to the ship, and while in the act of bartering, the bags are carefully watched over lest a member of one's extended family stealthily extract one of the figures and take it as his own for barter. In such cases the relative who has "stolen" the object does not have to report the incident to the original owner until after he has bartered the item. Not to eventually report its taking is regarded as theft, as would be the case of a non-relative taking an object from one's bag or pocket, and the object or its equivalent would be asked for immediately.

The extent to which this filching goes on is such that when several natives are gathered together for the purpose of bartering with foreigners they will exhibit only one item at a time, the remainder being carefully hidden in their bags. How important this is is reflected in an incident at our expedition's camp. Since the camp was located on government ranch land, the natives were not allowed to visit us without government permission. A special trading day was arranged with the island governor. On that day the natives assembled in force with their bags bulging with wood carvings. The customary pattern of offering a single item at a time began as usual. However, since for some of our staff this was the principal opportunity to obtain these objects, they asked that all the available carvings be exhibited at one time so that they could see the range of material and complete their purchases on that one day. Heyerdahl called the natives together and explained the request and further pointed out that on the Chilean mainland such open markets were customary. The request was met with considerable antagonism, and it was not until we all agreed to stop trading that the natives held a council and finally, apparently agreeing to a moratorium, consented to lay out their full range of goods.

Steal trading virtually recognizes the concept of extended family use rights for a great majority of items. However, it falls short of the recognition of family-wide property rights in that the individual's ownership of an article, and his right to obtain equal value for it in the event of its being taken, is fully recognized. Only

in the matter of farm produce is there an approach to the concept of extended family property rights. Here the formalities of steal trading are not encountered, and anyone may go to the garden of a relative and, with or without permission, take produce to the extent of his normal family needs. Since there is year around gardening, the staggering of planting times for various staples is practiced in such a manner that when one relative's taro or sweet potatoes, for example, have given out, another's has become ripe and available to the entire family.

Unlike deferred trading, there appears to be no socially sanctioned upper value limit to the items that can potentially be obtained through steal trading. Although where a member of a family abuses the privilege too often one may forbid the relative to enter his house, such a procedure is not readily undertaken because of gossip and other social pressures. The real control, as far as I could gather is the secret cave, or hideaway. It is, in fact, the only manner of control, for, as described, any available object is an insecure one as far as its owner is concerned. Since secret caves or caches may be accidentally found by another, they are guarded by dangerous personal spirits called *akuaku* who have the power to disable or kill any trespasser.

That the existence and power of these guardian spirits is still very real to the Easter Islander is demonstrated by a happening on my excavation. We had received indirect word that a native had accidentally discovered a cave with a wooden *rongorongo* plaque in it. Fearing that if the story were true, the plaque would be rotten and easily destroyed if moved, Heyerdahl requested that we send word through our workers to whomever had discovered the cave that we would be happy to treat the specimen with preservatives whether or not it was to be removed. After bringing the matter up with my native laborers, they entered upon a long and serious discussion as to the dangers involved. The power of the cave's guardian *akuaku* over a foreigner, or even a foreigner's gun, was thoroughly talked over. In the end my chief informant and close friend ended the discussion by announcing that, since I had a wife and children whom I would want to see again, they would not, if the finding of a *rongorongo* cave were true, tell me about it, for if I entered it I would surely die before reaching home again.

The existence of secret caves on Easter Island has been written about to the extent that they have virtually become a myth. However, in 1786 we read that "In those subterraneous cells the islanders store up their provisions, their utensils, their wood, and in general all the little property they possess."[4]

As may be seen, the need for some secret and spiritually protected "warehouse"

4 J. F. de la Pérouse, *A Voyage Round the World . . . 1785-88 by the "Boussole" and "Astrolabe"* (Translated from the French, vol. 2, London, 1799), p. 348.

is a functional necessity for the personal preservation of family heirlooms and capital assets — and the amassing of capital assets, usually in the form of goods, does exist as part of the cultural complex. That such caves have not been revealed, and normally will not be revealed without tremendous pressure, or until acculturation is far advanced and a cash economy has been fully accepted, is logical. The secret cave in Easter Island culture represents the one secure place for whatever kind of property an islander wishes to keep, so that if its location were once revealed and an intruder should fail to be persecuted by the guardian spirit, the one security system that is untouchable might well be broken. With its downfall, the accumulation of anything, whether it be regarded as wealth or not, would be impossible under a continued existence of the steal trading system.

That the hiding of objects continues today was clearly revealed on the day that Heyerdahl came to inspect my excavations. Having sent word in advance that he would be interested in trading for any native materials, my workers brought up various items. Of especial interest was a beautifully finished ancient stone fish hook which one of the workmen, Juan Atan, brought forth from his shoulder bag. To my surprise, the other three laborers, all related in one way or another to Atan, exclaimed over the fish hook as much as I did. It was obvious that they were seeing it for the first time. Questioning brought forth the fact that this specimen had been one of six found together in a sand bank near Hanga-pico some years before, but few people had ever seen them as they promptly disappeared from circulation. It was further revealed that all three men had known that Juan possessed at least one of these hooks. Asked why, since they were all relatives, they had never seen the object before, they, and Juan Atan, admitted that for such valuables each man had to have a hiding place, for otherwise his relatives might take them.

During a later discussion of hiding places, my same informants explained that in earlier days, some men possessed secret caves closed by a boulder and amply camouflaged. If a person who did not have such a cave wished to keep some valuable items intact, he would wrap them in a reed mat bundle and give the package to a man with a hidden cave for safe storage. For the use of his cave the owner received an *umu*, or earth oven meal, of chicken and sweet potatoes or some other vegetable, once each month. The owner of the package never knew where the storage cave was located and, should the cave's owner die before revealing its location to a chosen son, primogeniture not being followed, the cave and its contents were lost.

Since my informants described the above in terms of "earlier days," I am unable to say whether or not this procedure applies to present-day practice, but considering the delicate nature of the subject, it is possible that they were explaining present-day custom but masking it in terms of the past. Be that as it may, two things seem

clear: hidden storage does exist, whether in the form of a cave or a cache, and the spirit guarding such storage is still, in the eyes of the Easter Islander, a very real protective device.

Having dealt with one element of what has been previously misinterpreted as the thieving nature of the Easter Islander, it may not be out of place to describe briefly what I could learn of his own concepts of what constitutes theft. Here again the cloth bag and the wrapped parcel must be brought into the picture. To the Easter Islander traveling beyond the confines of his own house and yard there is only one way to care properly for his possessions, and that is always to keep them enclosed in some container. To leave things scattered about, or exposed, except in his own household domain, is to reveal to others that he does not value them and they are therefore free for the taking. Thus anyone who scatters his things about in the open, as is often the case with foreigners having a different concept of property and its management, is to the islander not taking care of his things properly and, in consequence, is offering them to any passerby. If an item is taken under such circumstances, the Easter Islander blames the original owner for his carelessness rather than the taker of the object. Many of the numerous accounts of open robbery of early explorers, as well as of recent visitors to the island, fall within the above picture, and, to the islander, would not be considered robbery on his part. That he recognizes a genuine loss as an accident, rather than mismanagement of one's property, was amply illustrated during our five-month stay on the island when such items as fountain pens and the like were lost and, being discovered by some native, were brought by horseback across the island to be returned to the rightful owner. Yet, around our camp, if things were tossed about or left hanging on tent ropes, there was always a good chance that they would disappear.

In another realm, the taking without permission of any food or articles from a man's property by a non-relative is regarded as stealing, as would be his filching of something from the same man's bag or parcel. At the present time, retribution for stealing is no longer fixed firmly in the islander's mind. I was told that if a thief were caught he would be compelled through great social pressure to return the stolen object or its equivalent, but no mention of punishment was made. Others, however, now say that the culprit would be turned over to the government for proper justice. In any event, stealing, even in the concept of the Easter Islander, does occur today and is not limited exclusively to foreign visitors but includes natives as well. However, in spite of what has been written about the islander's thieving tendencies, in terms of Rapa-nui concepts it is doubtful if there is a great deal more theft per capita than on other Polynesian islands at a more or less comparable level of acculturation. Some increase might be expected due to the general

unavailability of material goods, and the temptations presented upon the arrival of numerous foreigners during the yearly tourist "invasion," but it would hardly be sufficient to match the reputation that the island has obtained.

DISCUSSION

In a culture such as that of the Easter Islander, which exhibits a high degree of material culture modification toward Chilean patterns, the lack of a concomitant trend toward the use of money as the dominant exchange medium seems somewhat surprising. Of the three basic exchange systems present on the island, i.e. money, barter, and forced exchange, probably only the last antedates the contact period. Since the three varieties of forced exchange sufficiently interlock to allow all essential goods to be distributed throughout the population, there appears to be no internal need for a barter system. With no opportunity for regular external trade prior to White contact, there was no need to develop any special trading system to deal with outsiders. Thus, with the first arrival of foreign vessels the islanders appear to have dealt with the new people through any and all of their varieties of forced exchange, including steal trading. From the reports of the first European expeditions to touch at Easter Island, it is clearly evident that Rapa-nui concepts of proper exchange methods met with little understanding and often resulted in the development of considerable antipathy. Barter, however, was a technique understood by Europeans and, for the Easter Islander, was a method only slightly removed from his technique of gift exchange which he normally used with nonrelatives. Therefore, although it is possible that barter was used between Easter Island tribes prior to European contact, it seems more probable that it was the first exchange system introduced to the island by Western civilization. Today this system continues to be used primarily in trading with foreigners, other than administrative officials.

Money, as a medium of exchange, probably did not enter into the economics of the native culture until 1916 when Chile took over active administration of the island and leased the greater part of the land to a British wool-growing organization. One of the stipulations in this lease was that the company maintain a small store through which the natives could obtain certain material goods to help satisfy their basic requirements. Since the company hired native ranch hands, and the Easter Islander produced nothing that could be accepted at the store as readily convertible to cash, it seems reasonable to suppose that money was introduced into the population via the store. Certainly this was being done immediately prior to the cancellation of the lease a few years ago.

Since the store existed only because of a clause in the lease, and the only money

available for purchases was that paid out by the company to about a dozen natives, there was certainly no need, nor desire, to maintain either a great range or quantity of stock. The Easter Islander, having a functioning exchange system of his own, found money useful only to the extent of the store's limited inventory and therefore had no incentive to accept the new medium beyond its immediate usefulness at the company store. As late as 1934 Métraux recounts that the Williamson and Balfour company was failing in its efforts to get the islanders to raise corn to sell to them at good prices.[5] Money, above a certain limit, was simply paper to the Rapa-nui.

With the cancellation of the lease and the advent of Chilean Naval administration, the number of ranch hands was greatly increased in a conscious effort to distribute more money among the natives. At the same time, the store was continued, its variety and quantity of goods increased somewhat, and its prices lowered. The move was in the right direction for the introduction of a dominantly cash economy, but was not carried far enough. The islanders not only took to the newly introduced items, which now included cement, lumber, and other building materials, but promptly started asking for more. However, the introduction of more money into native hands was not accompanied by a program designed to make that money immediately useful, or, for that matter, useful in the foreseeable future. As of 1956 (the date of our observations) the total value of the store inventory continued to stay substantially below available income and, since the observable government policy is to keep the islander on his island — the government choosing who will or will not be allowed to visit continental Chile — there has been no reason for the development of a native-wide, self-determined drive to accumulate money for eventual use on the mainland. Only in 1956, through the interest of Governor Curti, was the number of islanders allowed to visit Chile increased, ten having been given permission to make the trip on the supply vessel. A possible result of the announcement of this more liberal program was a small, but significant change that took place soon after in one aspect of Easter Island economy. Whereas in the past the slaughter of an ox was accompanied by wholesale distribution of the meat via the deferred exchange system, a new method developed whereby the owner of a particularly good animal let it be known that he was especially fattening it for slaughter and that the resultant meat would be sold for cash.

With the islander's keen interest in improving his material life, his desire to travel beyond his remote bit of land, and the wish among many to give their children a certain amount of advanced education on the mainland, the motives for the accumulation and general use of money are present. It seems wholly likely that

5 Alfred Métraux, *Ethnology of Easter Island* (Bulletin, Bernice P. Bishop Museum, no. 160, Honolulu, 1940), p. 159.

given the opportunity to use money for the fulfillment of their wants, the Easter Islanders will rapidly come to understand and accept a cash economy. It appears quite evident that here we have a situation in which it is not the conservatism of a native culture that has held up economic acculturation, but rather the ineffectual policy of the administering government. Oddly enough, Chile recognizes the advantages of converting the natives to a dominant use of the peso but, lacking any long range program of island development, let alone a central authority thoroughly conversant with island affairs, it has fallen into the absurd position of attempting to put more money into the islanders' pockets while failing to supply them with an acceptable use for all but a fraction of the money so distributed.

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TRADITION TREND IN ARCHAEOLOGY AND LINGUISTICS

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IN A RECENT PAPER, Willey proposes a new concept for use in historical interpretation, that of *tradition trend*. In this paper I shall examine its application to language.

The presentation of the concept is summarized as follows:

> a tradition trend in ceramic development is a time-dimensional configuration which is expressed in pottery decorative or other pottery properties and which co-ordinates and interrelates the changes in the various sequences and styles of a specific pottery tradition. It is a phenomenon resulting from historical contacts whose evidences may, or may not, be readily perceived. It appears to be subject to certain limitations of geographically continuous space in the same manner as the pottery tradition."[1]

Empirical support for the concept is inferred from south Appalachian and Gulf Coast-lower Mississippi data, two cases in which the historical integrity of the trend is undisputed. The concept is then extended to the interpretation of changes in ceramic style in two cases where various individual traditions have been considered historically distinct. These are the Hohokam, Anasazi, and Mogollon traditions in the American Southwest, and the Nazca, Tiahuanaco, and other traditions in southern Peru and adjacent Bolivia. For the Southwest, the trend is characterized as change from simple, bold, broad-lined designs to increasingly complex, fine-lined designs in which small repetitive elements and filler play a prominent part, life forms appearing midway in the sequence. For the South Peru-Bolivian case, both highland and coast, the polychrome trend begins with the use of relatively few colors, combining bold geometric and life designs, followed by increased utilization of color and more naturalistic (curvilinear) designs, then by the breakdown of naturalism through reduction and stylization, colors becoming fewer, and repetitive geometric design emerging at the last. Willey argues that the presence of such a tradition trend in each case is evidence that the various individual traditions were not historically independent, but comprised a unified tradition.

From the viewpoint of historical anthropology as a whole, one can ask how general is the tradition trend concept. Is this phenomenon specific to archaeological data, especially material culture such as pottery, or does it have applications to the data of ethnology and linguistics? Either finding would be of interest. If no appli-

1 Gordon R. Willey, *Tradition Trend in Ceramic Design* (American Antiquity, vol. 20, pp. 9-14, 1954), p. 13.

cation outside archaeology appears, this helps delimit the particular character of archaeological data and interpretation. If applications are found, this adds to our understanding of the nature of cultural change in general.

Willey himself has considered the possibility of parallels in language, referring to Sapir's concept of drift as a fascinating but apparently unrelated phenomenon. Before following his lead, and looking further in language for examples of tradition trend, I should make clear the conditions I understand such examples must satisfy. These are two.

First, it must be a case of a particular historical interrelationship. This rules out (a) independent parallel evolution or convergence, since "the trends of change that characterize the pottery traditions of this discussion are the results of significant historical contacts throughout the time span or life of the tradition."[2] If we may speak of "laws of development," this rules out any which are (b) universal laws, since "each [tradition trend] does not in itself recapitulate any greater pattern or law of change" and "the parallel configurations that exist among the component parts of any tradition are peculiar to it alone. They are not duplicated by the trends in the other traditions."[3] This also rules out (c) drift, or continuing parallel development in different branches of a single tradition after separation, such as noted for Indo-European languages by Meillet,[4] since the mechanism must be continuing intercommunication between the parties to the trend. (As to mechanism, Willey indicates specifically the archaeological evidence of trade and horizon styles).

Second, it must be a case of parallelism in basic style or patterning rather than in individual traits. The sharing, say, of sex gender between Chinookan and certain Coast Salish languages, or of reduplication as a grammatical device by Kwakiutl and Tsimshian, would be only an individual agreement against the background of greatly divergent basic patterning.

To sum up, examples must be found of concurrent shift in a basic pattern among intercommunicating linguistic groups. Note that the initial agreement in a basic pattern might be brought about either through interinfluence or independent convergence; it is only the subsequent concurrent shift that cannot be due to independent convergence.

In my opinion, the following sorts of linguistic phenomena would fit these conditions. (1) Two speech communities, agreeing in a pattern of being dominantly prefixing, shift concurrently to a pattern of being dominantly suffixing; or, the

2 *Ibid.*

3 *Idem,* pp. 12-13.

4 A. Meillet, *Introduction à l'étude comparative des langues indo-européenes* (Paris, 1937), pp. 423 ff.

reverse occurs. (The shift from predominantly suffixing to predominantly prefixing does happen, as in Chinookan, despite Greenberg's dictum to the contrary.[5] (2) Two speech communities, agreeing in verbal systems based on aspect, shift concurrently to verbal systems based on tense. (3) Two speech communities, agreeing in a syllabic pattern of the type CV (C) (so that all syllables begin with a consonant, contain one vowel, and end with that vowel or a single consonant), shift concurrently to a syllabic pattern of the type (C) CV (C) (C) (C) (so that instead of only two syllable types, CV and CVC, there are many: CV, CVC, CVCC, CVCCC, CCV, CCVC, CCVCC, CCVCCC, and tautosyllabic consonant clusters, before prohibited, now are frequent). (4) Two speech communities, agreeing in phonemic systems having a small set of vowels and a large set of consonants, these diversified among several series of stops, such as glottalized, aspirated, and voiced, shift concurrently to phonemic systems with a small set of consonants and a large set of vowels, these diversified among several series, such as short, long, and nasalized.

When one looks for examples of such shifts as between unrelated or independent languages, it becomes obvious that linguistics has not ordinarily dealt with tradition trend as a special phenomenon. It has dealt with drift, convergence (especially under the heading of typology), and borrowing to explain resemblance in basic pattern, as well as with sheer retention of original resemblance, but not with shift from one point of resemblance to another through intercommunication.

Perhaps this shows there are no cases of tradition trend in language. I think, rather, that there is a clear case of tradition trend in language, but one which has never been taken as a problem to be explained. It is the general case in which the two speech communities begin as, and remain, speakers of the same language. Thus, a study of other Chinookan dialects shows that the Wishram and Wasco speech communities must once have used a verbal system based largely on aspect, as is that of Kathlamet. Together these communities, situated on opposite sides of the Columbia River, must have shifted through intercommunication to the verbal system they now share, one based on a remarkable elaboration of tenses. It is likewise an instance of tradition trend when all the many and various English speech communities shift concurrently over time from a syntax based on case suffixes to a syntax abounding with prepositional constructions.

Now it is clear that the sharing of shifts in basic pattern requires more intimate interaction between the members of two groups than does the sharing of individual features. To cite an archaeological instance:

5 Joseph Greenberg, *Essays in Linguistics* (Viking Fund Publications in Anthropology, no. 24, 1957), p. 93.

It should be emphasized that the evidences of diffusion between Middle America and Peru are those of culture elements and culture content. In style and patterning the arts and institutions of the two areas are quite distinct. . . . There is little question but what styles and patterns resulted from local creativeness and inventiveness in each area and within smaller local regions of each area.[6]

It is also clear that there are archaeological and ethnological parallels to the type of linguistic case I have cited. In all three there is diffusion, but diffusion restricted to the bounds of a single cultural tradition, society, or language, stimulus interdiffusion, one might say, among individuals who already share the vast bulk of the concrete detail whose patterns are shifted. It may be a peculiarity of language that tradition trend can be found only in this case.

This would imply, regarding historical relationships, that tradition trend can never function as proof of historical relationships not otherwise perceived, so far as language is concerned. The genetic relationship of a language to itself is by definition, and the identities between the speech of communities sharing a common language are so apparent that the question of technical proof of historical connection is never raised.

This peculiarity of language would imply, regarding the nature of language change, that shifts in basic pattern, to be shared, presuppose a much greater common base than is required in other areas of culture. This would be another way of saying that such proposals as that Tlingit and Athapaskan are unrelated, owing their resemblance in basic verb pattern to diffusion, are absurd. For the diffusion to have taken place, there would already have had to be a degree of resemblance sufficient to constitute genetic relationship itself.

The search for linguistic instances of tradition trend, then, may highlight from a new angle the fact that language has a special role for the individual, the society, and the culture, such that it is maintained as the relatively most self-contained, impervious, style-embodying system.

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6 Gordon R. Willey, *The Prehistoric Civilizations of Nuclear America* (American Anthropologist, vol. 57, pp. 571-593, 1955), p. 589.

VICARIOUS PATERNITY AMONG SERBS AND CROATS

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I

THE SERBS AND CROATS are two Southern Slav nations having many common traits, especially in their folk culture. They have also a common literary language, but they had until recently a different political development and tradition. A great majority of the Serbs profess the Orthodox faith, while the Croats belong to the Catholic church. A considerable part of the Yugoslav population are Moslems; some of these speaking Slavic languages consider themselves Serbs, the others Croats, but the majority of them are nationally not yet declared. Although since the Revolution urbanization in Yugoslavia is proceeding very rapidly, the agricultural population still prevails among both Serbs and Croats (66.6% in Serbia, 56.4% in Croatia, and 62.2% in Bosnia and Hercegovina according to the census of 1953). Mention should also be made that among both the Serbs and Croats the extended family *(zadruga)* was very common; after the Revolution this form of family organization became very rare. Kinship relations are manifold and extensive, especially among the Dinaric Serbs and Croats, with exogamic rules among the Dinaric Orthodox Serbs going so far that even the most remote relatives are prohibited to marry, provided there is awareness of common origin and patrilineal kinship sustained by the common kin (family) name and the common patron feast.

While Yugoslav marriage customs and practices are already fairly well known from many monographs as well as from many collections of ethnographic material, comparatively little has been reported about both the institution of marriage and the forms of family and kinship. The main reason for this lack of information is insufficient research and the ways of approach to the problem that have prevailed so far.

The present author investigated in Yugoslavia a peculiar form of extramarital sexual relations intended solely for the persistence of the marriage and for the realization of one of its main ends, i.e. the begetting of children. It has been established that in many regions a wide-spread institution exists whereby the wife of a sterile husband temporarily has intercourse with another man solely in order to become pregnant; she undertakes it usually in agreement with her husband or her mother-in-law, and is sometimes even forced or persuaded by them. We have named this vicarious paternity.[1] The author excludes from his consideration all forms of illicit extramarital sexual relations, adultery, marriage triangles, etc.

1 The author wishes to express his indebtedness to Prof G. P. Murdock for advice as well as for this and other appropriate terms he suggested.

Before the Revolution marriages among Christian Serbs and Croats were contracted according to the Canon rules of the Catholic or Orthodox churches; in the Province of Vojvodina alone was civil marriage compulsory, this since 1894. Moslems contracted marriage according to Islamic (Sheriat) Law. Although these practices lasted for centuries, they could neither extinguish all pre-Christian (and pre-Islamic) marriage and family forms and relations nor prevent the appearance of ideas and forms overtly opposed to the Church or Civil Law. Even at the present time such ideas and forms exist, especially in the rural population.

The institution of vicarious paternity is a feature of that kind: although prohibited by existing law, the institution has persisted in many regions up to the present. Almost unknown to earlier Yugoslav ethnographers, the institution is rather wide-spread among the Serbs and Croats.

The institution of vicarious paternity, or helpers in making married women pregnant, occurs in many ancient and modern societies. The ancient Hindu practiced the *niyogi:* when a husband died without leaving offspring, it was his brother's duty to beget children by the widow, and the children born from such a union belonged legally to the deceased husband. In ancient Greece the institution was even permitted and regulated by law in Athens (Solon's Law) and in Sparta (Lycurgus' Law): impotent and weak husbands were authorized to take helpers. The institution has been recorded also in ancient Rome as well as among the old Prussians. Martin Luther permitted an impotent husband's wife to have a "secret marriage" with his brother or another close relative in order to preserve the family name and to prevent the passing of the family property to a stranger. The institution is also known to many modern nations and tribal societies, very distinct in their origins, social organization, and ways of life: it has been observed especially in India and among many peoples in Africa (e.g., among the Shilluk and Nuer).

The territory inhabited by the Serbs and Croats is rather large. The author has not been able to visit all Yugoslav regions, and he was limited to the data collected in regions he had opportunity to visit for other purposes during the last twenty years. He has also used the very few and insufficient data provided in published ethnographic material and other sources. These data were presented in other guises, e.g., as quasi-polyandry or as the custom of offering a woman to a guest. It is important to note, too, that vicarious paternity is not known to be practiced in all Serbian and Croatian regions (although it probably exists); even in the areas where the institution does exist it is not everywhere of the same vigor nor has it the same form: there occur many regional variations. The fact that vicarious paternity is not compulsory for childless couples is also to be emphasized: this sort of help

is used among the Serbs and Croats only by deliberate choice, i.e. even in regions where the institution is practiced all childless couples do not resort to it.

Bearing and rearing of children is treated in many societies not only as a natural phenomenon and a necessity but even as a bounden duty. So it is also among the Yugoslavs, especially in the economically and culturally backward regions, where children represent the only guarantee for the welfare of the household as well as the best provision for sustenance in old age and a care-free expectation of death, since they are persons to whom the household, the property, and the minor family members can be left. These aims and desires have taken on a religious aspect among many peoples, even among the Southern Slavs, especially the Serbs. Here every man's bounden duty was to beget for himself an heir who will bury him with the customary rites, arrange death feasts, and care otherwise for his and his ancestors' souls (especially to continue to light the candle for the family's patron on the patron's holiday). There was no worse curse among the Serbs than "may he never have offspring of his own" or "may his patron's candle be extinguished forever," i.e. may he die without offspring. To die childless meant in such a society a loss of social reputation as well.

The husband's sterility is very frequently the reason that many a wife remains barren. Some of the wives accept such a situation with resignation, but many do not passively endure it but try to find help or remedy. In a society compelling women to complete marital "fidelity" all extramarital sexual relation even for a short length of time is treated as a grave sin and, if discovered, usually causes conflicts and divorce. Nevertheless, childless women caught in this dilemma will seek help in extramarital sexual relations but only to gratify their instinct of maternity. But the author will not discuss here extramarital relations or the role of inseminators in societies treating such help as sinful and therefore prohibiting and condemning these practices; this article is concerned with vicarious paternity in those regions where the bearing of children is so much desired and treated as so indispensible that a barren wife is not obliged to seek a helper secretly — as otherwise happens very often — but proceeds with the knowledge and permission of her husband or at the persuasion of her mother-in-law, as well as with the silent approval or public encouragement of her society. Vicarious paternity works in this manner in many regions inhabited by the Serbs and Croats.

Unlike many other ancient and modern peoples, among the Serbs and Croats there was a rather wide-spread custom of taking an inseminator, but this only while the husband was alive and only for the time needed by the wife to become pregnant. Therefore such extramarital sexual relations are not considered shocking. But if a widow happened to have a baby by some man, such a child was treated as illegiti-

mate, i.e. it was not considered to belong to her deceased husband. Among the Serbs such cases *(niyoga)* are extremely rare; only one came to the author's knowledge.[2]

Mention should also be made that the idea of vicarious paternity is inherent in many magic practises too; e.g., it is a very common practise that barren women visit sacred springs near to sacred (tabooed) trees, especially sacred stone poles (phallic symbols) in open fields or in Moslem *tekkes*, which they embrace. Then they visit monasteries on their patrons' feasts and practice ritual incubation. Even various magic practices with cocks, serpents, etc., are performed.

II

An earlier ethnographer reported shortly before the World War I that in the region of Homolje (Serbia) "many childless women change husbands and have sexual intercourse with married men having their own children. That happens often even with the husband's knowledge, particularly if the husband's sterility is the reason for barrenness. It is more common that the wife secretly offers herself to somebody informing him why she wishes to have intercourse with him." Barren women do so advised by some witch or some woman confidant who praises and recommends to her some man as fortunate so that she has intercourse with him to become pregnant and to satisfy both her husband and her mother-in-law.[3] The late Prof Djordjević reported that several such cases came to his attention from the former District of Niš (Serbia) because the men who were asked for such help were indiscreet.[4]

Barren women in the neighborhood of Leskovac (Serbia) ask medical help from doctors and magical help from witches; they also ask priests to read special prayers and to bless them. Two priests from that region gave me their impressions: it seems that women expect and desire a priest to serve as seed-raiser — since a priest usually has children — for he will be obliged to keep the secret confided to him, etc. It has been recorded previously that in the region of Zaplanje (also in the neighborhood of Leskovac) barren women desiring to have children and believing their husbands impotent, used to have intercourse with other men.[5]

2 As the author was informed in the region of Takovo (Serbia), it happens that a widow left by her husband without offspring strives to bear a child within the terms the law foresees that a posthumous child can be treated as the legitimate child of the deceased man, but the society does not concur in the legislators' opinion and intention, and the relatives make efforts to see that such posthumous children do not remain alive, inheritance providing the rationale for such behavior.

3 S. M. Milosavljević, *Običaji srpskog naroda iz Sreza homoljskog* (Srpski etnografski zbornik, vol. 19, Beograd, 1913), pp. 86, 188.

4 Tih. R. Djordjević, *Naš narodni život* II (Beograd, 1930), pp. 149-150.

5 V. K. Petrović, *Zaplanje* (Zbornik za narodni život i običaje, vol. 5, Zagreb, 1900), p. 259.

In the Takovo area (Serbia) childless couples ask doctors to help them or to find which of the partners is sterile. Also comparatively frequently an impotent man's wife asks another man to help her beget a child or children. The author learned of several cases and saw persons born out of such unions. Their neighbors know of it but do not denounce the parents as they would condemn a girl or a widow who bears an illegitimate child, just as they would denounce a healthy person — a married man or woman — having a healthy and able-bodied spouse but nevertheless entertaining extramarital sexual relations with some other person. If a marriage remains without children for a long time or if an old man marries a young woman and then children appear, it is promptly assumed that the wife has sought help from somebody else, and that is not considered a sin. Otherwise, if the marriage is childless because the husband is impotent, the husband usually agrees silently or expresses approval that his wife become pregnant by another man. A wife will also ask such help secretly, but she does it frequently with her mother-in-law's knowledge; it happens even that the mother-in-law may procure a helper for her daughter-in-law. Perhaps even more frequently a mother herself appears as go-between: a mother usually knows whether her married daughter has a lover, and she usually arranges that her barren daughter gets a helper. This is the procedure when the husband cannot or is not willing to divorce his wife. A friend from that region assured the author that rather frequently the parents of a married impotent son make efforts that their daughter-in-law bears a child by another man. In such a case they take the utmost care that the helper is not a relative, i.e. a member of the same kin, and that he is an able-bodied person. It has occurred that the helper received some gift from the family, even that the mother of such a wife sent a gift to the helper.

Prof Djordjević reported an earlier case from the region of Dragačevo (Serbia): a woman went to the priest, asking him to pray for her and after prayer was over she asked him to "turn her shirt over," since prayer without it would be of no use. In connection with this, Prof Djordjević mentioned that such barren women were taken to monasteries where prayers were read for them. Afterward it was arranged that they remained alone with monks. In the former District of Užice it was considered a pious act or endowment to devote a barren wife to a monk or a priest.[6]

The institution of vicarious paternity occurs also among the Serbs in Bosnia. F. S. Krauss was the first to report it (in 1904), but his information were second-

6 Djordjević, *op. cit.*, p. 150.

7 F. S. Krauss, *Südslavische Volksüberlieferungen die sich auf den Geschlechtsverkehr beziehen* (Anthropophyteia, vol. 1, Leipzig, 1904), p. 284.

hand, unreliable, and not precise.[7] A Serbian (Orthodox) monk from northwest Bosnia (Bosanska Krajina) told Prof Djordjević he helped a woman give birth to two sons: she had intercourse with the monk with her husband's knowledge; the husband himself told of it and showed his appreciation by giving a party in honor of the monk when he was to leave the monastery.[8] The author himself collected additional pertinent data in Bosnia in the years before and after World War II. Among the Serbian population in the villages around the monastery of Ozren and at the foot of the mountain of Ozren childless women used to go to clergymen and ask them to "say a prayer." Such a woman usually told the priest she was coming to him that he may "turn her shirt over." She used the same words as in the rather distant region of Dragačevo: this is proof that the custom and the term must be known in a wider area. Such ideas are common in the whole valley of the river Spreča — the region of Ozren is only a part of it — as well as in the neighboring regions. In a village in this valley it happened that a priest was really raped by a woman: when he came to that village to consecrate holy-water and when he entered an extended family's house where there were three daughters-in-law, one of them, who had no children, asked him to say prayers for fertility. After that she put on her best clothes and invited him into a barn. When he had entered, she locked the door and ordered him to lie down with her. She threatened to shout and proclaim violence if he was not willing to do it. A son was born, and the situation of that wife in the family improved. Such services are asked from priests also in the neighborhoods of the towns of Zvornik and Srebrenica. In the villages at the foot of the mountain of Majevica and in the valley of the upper Spreča it occurs that a mother-in-law procures her barren daughter-in-law a respectable person who will discreetly deal with the affair as private negotiation.

In the neighborhood of Visoko (central Bosnia) barren women enter extramarital sexual relations in order to become pregnant. It is important that a soothsayer "cured" barren women in that way. Recently (1954) a Serbian woman from a village in the region of Sarajevo, in agreement with her mother-in-law, asked her parish priest for advice and permission to beget a baby by help of another man, since her husband was sterile. During field work in 1956, in the villages on the northern mountainside of the Treskavica (also in the region of Sarajevo) the author got the impression that extramarital inseminators were used frequently, but he learned of no individual and reliable case.

In the highlands around the town of Mrkonjić-Grad (south of the city of Banja Luka) in the early 20th century it was treated as something quite normal and not shocking to find another inseminator for a barren wife. It is very significant

8 Djordjević, *op. cit.*, pp. 150-151.

that the District Court in Banja Luka, on August 30, 1938, had to pass judgment on a person (Serb, illiterate, unmarried) guilty of several crimes; among them the defendant confessed that "he did say prayers and girdle barren women desiring children with a belt and that he did procure some smart man dressed in a white shirt, whom he used to introduce as a good spirit with whose help the woman would conceive, so that these men had sexual intercourse; actually in several cases women became pregnant." Although here is an abuse of the custom and the folk beliefs of a naïve and backward population, nevertheless this case confirms and illustrates the existence of such customs and contributes in some way to the question why clergymen mostly are sought to function as inseminators. Mention should be made that in ancient Rome gullible women were duped just in the same way.

Apparently the institution of vicarious paternity must be very common in the region of Srem (Syrmium), since there exists even a special expression pertinent to the custom: one used to say that a barren woman ought "to change the cock" (as one does with hens). The institution is known in Slavonia too: a Serbian (Orthodox) priest informed the author (in 1933) that a woman asked him for such a service. While the author of a monograph describing folk life in Dalmatia (1776) makes only a subtle allusion to clergymen in the role of inseminators,[9] a later ethnographer, himself a Catholic priest, plainly describes the pertinent customs in the region of Poljica (Dalmatia): of very bad reputation is the woman committing adultery and her adultery is a great shame for both her husband and herself. But, if the woman does not have any male offspring and the family has great property, she is not blamed so much, since it should be a pity if such a family died out ("if the candle on the family's grounds were extinguished"). In addition women whose husbands are absent for a long time, going as seamen or workers to the United States, have secretly extramarital sexual relations with other men; also young women married to old widowers, who do not have any offspring of their own, enter relations with some young men and give birth to children. But when it becomes known to the villagers, it is a shame for both such a woman and her husband.[10]

On the island of Pag (Dalmatia) the pilgrimage to Saint George on a mountain top is very common. Especially young brides having no children visit the place to make a vow. At that time a sexual anarchy arises there.[11] Almost everywhere

9 J. Lovrić, *Bilješke o putu po Dalmaciji* (Zagreb, 1948), p. 169.

10 F. Ivanišević, *Poljica* (Zbornik za narodni život i običaje, vol. 9, Zagreb, 1904), pp. 249-250.

11 I. Pilar, *O dualizmu u vjeri starih Slovjena* (Zbornik za narodni život i običaje, vol. 28, pt. 1, Zagreb, 1931), p. 50.

among the Serbs and Croats (as well as among other peoples) it is customary to visit at similar feasts and assemblies, which apparently present very appropriate opportunities for helping barren women: it is a wide-spread feature that visitors of churches and monasteries at their patron's feast sleep there in groups, and it is very easy to arrange a connection whose partners can remain unknown one to another.

So far the author has discussed the use of an inseminator taken from outside the family or the household. There is no doubt that such help did occur more frequently within the same house community at the time when the extended family *(zadruga)* was a common feature. The so-called *snochatchestvo,* i.e. sexual relations between a father-in-law and his daughter-in-law or between a brother-in-law and his sister-in-law, was in former times rather widespread; it occurs in some places even today.[12] The *snochatchestvo* occurred primarily where it was customary to marry boys under age to girls in full strength. This custom appeared and spread probably during the earlier Turkish rule in Yugoslav countries, when young unmarried boys were taken from their parents and, Islamized, enlisted in the Janissaries corps. The custom persisted for economic reasons also: in many regions, in order to have more workers, an extended family endeavored to wed its male members as soon as possible and to delay the weddings of female members as long as possible. As a matter of fact the *snochatchestvo* was a permanent sexual union, strictly speaking a marriage, children born out of that union belonging to the legal father. Where such relation and such tradition existed temporary sexual relations between a sterile husband's wife with his father or brother or other relatives within the same house community were quite possible, so that vicarious paternity was disguised and/or contaminated with the *snochatchestvo.* Unfortunately there are no detailed reports.

The services of an inseminator can be used even in the case where a couple has children, but these weak and of poor health, so that the woman may bear a healthy baby; hence the inseminator is taken for eugenic reasons, a principle established by Lycurgus in ancient Sparta. Unfortunately no sufficient, quite reliable, and complete data are available; however, published information indicates that the folk, at least in some regions, approve the use of an inseminator in order to improve their offspring. Scanty information of this kind is known from Bosnia and Serbia. Otherwise the motif of vicarious paternity for eugenic reasons occurs in folk poetry. Many folk beliefs indicate that one can influence the conception and the foetus in magic ways. It is a common belief that the baby to be born will resemble the person whom the pregnant wife saw when she became aware of her

12 Djordjević, *op. cit.,* pp. 153-156.

baby's first movement in her womb; a record from Croatia says that a pregnant wife is permitted to look intentionally at a pretty man just in order that her baby may be more handsome.[13]

As already demonstrated, the institution of vicarious paternity appears with many regional variations and peculiarities. In some instances a casual guest, a stranger, especially if he is a person of esteem, served as helper. It is very likely that such persons were made use of quite frequently and that in this way are to be explained many cases of sexual relations interpreted by some Yugoslav scholars as the custom of offering a woman to a guest. The existence of such sexual hospitality among the Serbs and Croats is still under question, since no reliable data are available. Generally speaking, a stranger is very suitable for such a service: he will leave and take with himself the secret; no slander at all or less of it will be provoked in the village; even the husband will have less reason for jealousy. But when a strange visitor serves as helper also mystic ideas, acting more subconsciously, must be taken into consideration: it is a very old and wide-spread belief that gods or saints appear and travel disguised as common men (theophany) and that every unknown guest may represent such a being.

A close relative or a healthy and respectable person (here eugenic reasons are in effect also) or a clergyman usually is sought as an inseminator. The taking of clergymen is very peculiar. The Christian Church condemns severely all forms of adultery and extramarital sexual relations even among common believers, and the rules concerning the sexual life of clergymen are still more severe. But the people do not share the same ideas. Even though we take into consideration that clergymen may have misused their position, nevertheless there is no doubt that clergymen who functioned as helpers (inseminators) to barren women were simply obeying the people and acting in accordance with the folk beliefs, hence paralleling their procedure when they pursued witches, unearthed vampires, and the like. This was particularly true in earlier times when untrained and illiterate priests were really priest more of a pagan than of a Christian faith. Several reasons might have been inherent in women's desire to have clergymen as helpers. In spite of all his low education and the fact that he lived in much the same way as his parishioners, nevertheless in earlier days he was a distinguished person: even at that time such a priest excelled the generality by his authority and usually by his better living and appearance. This is one reason, strengthened by eugenic motives. There was also the priest's professional duty to help all needy beings and his severe obligation to keep secret what he learned at confession or elsewhere; these aspects also recommended

13 J. Božičević, *Običaji u Šušnjevu Selu i Čakovcu* (Zbornik za narodni život i običaje, vol. 15, Zagreb, 1910), p. 233.

the priest as helper. A third reason which might also have had some influence is the fact that priests in villages once were very numerous and that many a kin or group of related families had a priest of their own; hence priests acted more promptly as inseminators since they were the most respectable and consecrated (because ordained) kin members. The idea that clergymen are personifications or representatives of higher spiritual beings and that they act only as middlemen in the conception which will be performed by those beings or by heroic ancestors might also have been of some influence. The above mentioned case of a swindler from Bosnia discloses that somewhere among illiterate and uneducated folk layers the idea still exists that a miraculous conception is possible. Finally there is still a peculiar reason, at least among the Serbs: while the Orthodox Church prescribes celibacy to all monks and widowed priests, in rural society is to be found the opinion that these priests and monks are common men too, that they have needs as all other men, that their needs are to be satisfied in normal ways, and that it is necessary to afford them also the opportunity to gratify their wants.

The priest as a helper to barren women, at least among the Serbs, appears as something so ordinary that he is used even symbolically in magic practices to realize a conception: in the regions of Levač and Temnić (Serbia) a woman who wishes to give birth to a male baby may, after her last childbirth, put the afterbirth on a house pole called "priest" *(pop)* saying three times: "I put thee on the 'priest' in order that the priest may pray to God to give me a male baby."[14]

In recent times there has been considerable change in social life among the Southern Slavs: the peculiar extended families, where happiness and welfare of a wife depended upon the children, have almost disappeared; a considerable part of the population has been included in social insurance for sickness and old age so that for many people security in old age no longer depends on their offspring. Divorce has also been made easier; religious reasons for having offspring have lost their vigor, etc. Nevertheless the institution of vicarious paternity did not disappear: it persists, further changing and accommodating itself to new conditions.

Serbian peasants have learned the accomplishments of modern science and medical practice, and they begin to use them. In Yugoslav medical literature the application and results of artificial insemination of women in Yugoslavia have not been discussed as yet, but the practice occurs. A surgeon with whom I had an opportunity to discuss the problem of the institution of vicarious paternity informed me that he sponsored artificial insemination to five couples from villages in the nighborhood of Vranje (Serbia) and to one from the District of Takovo.

14 St. M. Mijatović, *Narodna medicina u Srba seljaka u Levču i Temniču* (Srpski etnografski zbornik, vol. 13, Beograd, 1909), p. 392.

Only in one case was the operation suggested in some measure by himself; in all other cases he acted on request of those childless couples. In all cases semen was taken from the husband's brother, who had had children, and the operation performed with the full consent of all three persons involved. Thus the giver was not anonymous, nor was he a stranger; he was just the closest relative, whose "help" made certain that no strange blood be mixed into the family strain. This procedure will presumably soon acquire followers since it excludes various conflicts and disadvantages which can arise when a woman herself seeks help in the old way.

III

As the institution of vicarious paternity existed in many ancient societies and exists even in our own day among various peoples, it can be assumed that its origins among the Serbs and Croats date also from earlier times. Direct and reliable written evidence from earlier periods is lacking, but there are some data indicating that the institution is really an old one among the Serbs and Croats and that it was widespread in the past. The Serbian Orthodox Church had in the Middle Ages a penalty for a woman who, in order to conceive, used another woman's marriage bed. It is significant that the Serbian Church prohibited the custom at that time: either the custom existed or there existed the possibility of its practice. The institution is mentioned in written records from the 18th century: in a letter which two Serbs from Budim (present-day Budapest) wrote in 1739 to their bishop mention was made of monks helping barren women to become pregnant. A folk song, recorded in Slavonia (Croatia), has the following motif as subject: a mother-in-law sends her second son to help her daughter-in-law, the wife of her first son; according to the value concepts implicitly expressed in the song, such help did not represent adultery.

The foregoing is so convincing that the institution of vicarious paternity among the Serbs and Croats can be assumed to be not only well known and widespread but also very old. It can not be precisely established when it arose nor whether it appeared among these people independently or under some foreign influence. Although it is very likely that the institution was common to all Serbs and Croats, we cannot be certain since pertinent data from rather large regions (Bačka, Banat, Kosovo, Metohija, etc.) are lacking. Data for Yugoslav Moslems are completely lacking; although among the Moslems divorce and bigamy were permitted and both practiced frequently, particularly in cases of childlessness, nevertheless this does not mean that the institution of vicarious paternity was unknown to them. The author is convinced that Yugoslav Moslems do not represent an exception, especially after he has recently (1956) recorded two Moslem folk tales from the region of Sarajevo (Bosnia) dealing with this motif.

Obviously the institution persisted among the Serbs and Croats on the basis of folk ideas of marriage and the indispensability of children, especially in connection with the social organization and with the kinship system — ideas and values being results and manifestations of life reality and needs and therefore stronger than the rules both of Canon and Civil Law. Therefore the institution persisted in spite of all prohibition and even overcame the interdiction of Christian priests as inseminators. The institution persisted stubbornly through centuries in spite of all great changes in social and cultural life, but accommodating itself to changes, in most recent times using even the last medical accomplishment, artificial insemination.

IV

At the end of this article mention should be made that a woman too can function as vicarious parent. If the wife is sterile, her husband, with her consent or approval, begets a child by another woman and then he and his legal wife adopt the child. The data are very scarce: at present there is only one published account, this from the region of Piva (in present-day Montenegro).[15] The author established that it is a common feature in the region of Takovo (Serbia) where he learned of several cases from the end of the 19th and the 20th centuries; recently he discovered a case among the Croats in the region of Lepenica (central Bosnia).

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15 S. Tomić, *Piva i Pivljani* (Srpski etnografski zbornik, vol. 59, Beograd, 1949), p. 465.

CHANGES IN THE ECOLOGICAL AND ECONOMIC BASES IN A COAST LAPPISH DISTRICT

ROBERT PAINE

BACKGROUND*

THE COAST LAPPS[1] speak a Northern Lappish dialect. They are now settled fishers and farmers, living within the fjords and along the coast of the three northernmost provinces in Norway — Nordland, Troms, and Finnmark. That is to say, all are Norwegian citizens and all belong to the same Lappish major dialect area. In number, they account for the greatest majority of Norway's 20,000 Lapps (1930 census), and probably for over half of any estimated total of all Lapps. The term "Lapp" itself, when, for example, it is used in connection with national censuses, has usually been based on the facts of possession and use of the Lappish language.

The greatest number of Coast Lapps belong to Finnmark, which is the northernmost of the three provinces named. It is of an impressive size: Denmark, for example, covers 39,000 square kilometers and Switzerland 41,000, while Finnmark has an area of 48,700 square kilometers. It has a hard climate with several arctic features (see Fig. 3); yet owing to the influence of the Gulf Stream the mean temperatures are moderate when compared with what is experienced elsewhere along the same lines of latitude. In relation to its area the *total* population of the province is still very small: in 1930, 53,308 and in 1950, 63,844 persons.

While still today there remain one or two administrative areas in the province where the "Lappish" population is in local preponderance, at the provincial level the "Norwegians" passed from being a minority to a majority population in the middle of the last century. Besides "Coast Lapps," there are "River Lapps" and nomadic "Mountain (or Reindeer) Lapps" in the province. While there is contact between these groups, it is today least between the coastal and the other two. Besides the Lappish-speaking, there is also an appreciable Finnish-speaking minority *(Kvaens)* in the province; families and even composite settlements of the latter are not uncommonly to be found sharing coastal neighborhoods with Lappish-speaking persons.

Far from having been isolated, the Coast Lapps (by whom we will mean those

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1 For a nearer definition of the term, and for an outline of political, linguistic, and economic divisions within the Lapp world, see Paine, 1957, pp. 3-7.

Lappish-speaking persons of any historical period who have lived along this northern seaboard) have always had some contact, if often irregular and local, with both other Lappish groups of the same northern dialect area and with various non-Lappish groups. Disregarding Dutch, English, German, and other seafarers, the important non-Lapp groups have been Norwegians, Danes, Swedes, Russians, Finns, and Karelians. Whereas most of the contact with other Lappish groups has probably come overland, much of the Scandinavian and other non-Lapp contact has been made by sea. We note, however, in considering the possible moment of this "contact," that the Coast Lapp settlements, until recently at any rate, have been small and scattered, and that demographical remoteness has been accentuated by the inhospitable coastal terrain and coastal waters — "one of the earth's most stormy regions."[2]

The district concerned is on the west coast of Finnmark. Among its distinctive topographical features are the number of fjords and islands. The former are usually surrounded by steeply rising, rocky heights of up to 1,200 meters that often meet the water's edge in a precipitous bluff. The islands also rise steeply out of the sea. They vary in size from seven to over 800 square kilometers. They are relatively well populated, and most of their inhabitants today speak only Norwegian. Good fishing, of course, initially attracted population, but the milder sea climate also provides relatively rich pasture land for sheep and cattle. Most of the fjords (the longest of which is over 100 kilometers) are also favored in these respects, if to a lesser degree. We may note that, for the province as a whole, in 1950 five-sixths of the population was settled in coastal and island districts.

While the coastal mountain ranges afford (together with the islands) a measure of shelter to the fjordal communities, they also effectively separate one fjord from the next; but their windswept areas are the summer pastures for the reindeer herds of the nomadic Mountain Lapps from Kautokeino and Karasjokk.

One fjord in particular — Revsbotn fjord — was selected for the collection of most of the contemporary field material (Fig. 1). Revsbotn is the name both of a fjord and of the populated area at its base. In order to avoid any confusion, "Revsbotn fjord" is used in full whenever the fjord and all of its settlements (c. 100 households) are in question, whereas "Revsbotn" or "Revsbotn bay" denote just that area, including several settlements (45 households), at its base.

Mountainous formations run close to both sides of Revsbotn fjord. Between the actual settlements there are few places where there is space enough for a grass meadow, while for some long stretches there is no room for even the roughest

2 Reusch, 1917.

path between the sides of mountain and the fjord. Indeed, today, the settlements are only located in those few places where there is some pasture. The possibility that any site offers for fishing is, of course, another primary condition of settlement; and the degree of shelter from the sea gales, for both dwelling house and fishing craft, is a third.

FIG. 1. Revsbotn Fjord with place-names of settlements.

TRADITIONAL BASES AND CERTAIN FEATURES OF CHANGE

An impressive aspect of the traditional Coast Lapp economy in Finnmark is its span and apparent uniformity over the centuries. The archaeological site at Kjelmöy has been identified as a summer settlement from between the third and fifth centuries whose inhabitants were, it is now generally accepted, Lapps.[3] Late in the nineteenth century certain Coast Lapp groups in Finnmark still practiced a seasonal transhumance. The earlier transhumance was four-seasonal. It meant that the individual Coast Lapp groups exploited (but usually only partially) a wide eco-

3 Manker, 1953, pp. 40-45.

logical range and regularly moved over a relatively wide area of territory, perhaps stretching from the islands off the coast to fifteen or twenty kilometers inland from the base of fjords that vary in length from twenty to over one hundred kilometers.

Coast Lapp fishing took little account of the seasonal variation. Families fished for home consumption primarily but also for a commodity of barter, and for these purposes fish were usually found in local abundance. It was more especially their hunting proclivities that led the Coast Lapps to traverse an impressive ecological range. It was chiefly for the whaling, sealing, and wildfowling that they moved out to the islands in the summer, and perhaps in the spring and autumn too. It was in search of the wild reindeer and several other large prey that they moved up into the mountains in the autumn, and perhaps in the winter too.

Coast Lapp pastoralism also had an early history. It was probably never on a large scale, and is most worthy of note for the husbandry of reindeer *as well as* sheep and cattle. The reindeer had been especially valued as decoy and transport animals; later, as wild reindeer hunting became less common, so the tame reindeer came to be valued for their milk products and as one source of meat supply. Reindeer meat was also sold to some of the few Norwegian fishing settlements along the coast. My field material strongly suggests the possibility that the Coast Lapps' own long tradition of limited reindeer husbandry, and the presence among their number, in each generation, of ex-nomadic Reindeer Lapps, have, until most recently, influenced their husbandry of sheep and cattle. Even up to the years immediately before the Second World War, people were especially concerned with the *number* of the cows and sheep they possessed, and not so much with the amount of milk or meat that the animals produced.

What clues are there as to the organizational form of the historical Coast Lapp primary social and economic group, the *sii'dâ?*

On the one hand, the wild reindeer hunting and, but to a lesser degree, the whaling the Coast Lapps undertook, seem to point to a necessary measure of sophistication in social organization not otherwise suggested by the known demographical and ecological situations of these people. The construction of rows of wild reindeer pits, for example,[4] must have involved a relatively large number of persons. This labor, as opposed to that of the actual hunting and trapping, was not a seasonal one. It must be considered as an example of the occasional task of critical importance, for whose accomplishment extraordinary organizational forms were realized temporarily. On the other hand, the regular seasonal dispersion and isolation of the individual group inhibited most notions of land tenure (as opposed to usufruct), placed a limit on the sizes of the ordinary work-unit and made impractical any

4 See Manker and Vorren, 1953, *passim*.

strict observance of a sexual division of labor. What would be termed "work organization" must have remained, on the whole, minimal and probably characterized by its *ad hoc* bases. It is improbable that while fishing these Coast Lapps have ever worked in a numerically larger unit than that made up by the crew (six men) of the eight-oar boat, the largest of the various craft in use with these Coast Lapps during the nineteenth century, and earlier perhaps. And the figure of six for the crew is most theoretical: through the shortage of readily available manpower (?), many Coast Lapps managed their eight-oarers with but four men; yet in a rough sea several extra men over the theoretical number of six could be required to haul an eight-oarer onto the beach into safety.[5]

At all events, we know that a labor force of six men cannot always have been easy to find in the average settlement (and a smaller type of boat was often used). Even at the beginning of this century with three eight-oar boats in Revsbotn, the labor resources must have been seriously strained. There is evidence, both historical and contemporary, that a rough distinction along lines of sexual division may be made between the work done in and about the homestead and its stables, and work, such as fishing, always performed outside and often at a distance from the homestead — perhaps in another fjord or in distant coastal waters. Yet there is no ground for dogmatic division, and in practice women have been drawn into such essentially "man's work" as fishing. Both Lilienskiold (in 1690's) and Leem (in 1740's) noted this to be the case, despite the existence of certain menses tabus that affected the equal participation of a woman in work alongside men.[6] Even today a woman may row in the fjord; and when individual homesteads were more dispersed, the possibility of active participation of the womenfolk in the winter cod fishing must have sometimes been an essential condition of successful settlement.

The passage of the centuries is marked, at least as far as it is possible to ascertain for our purposes, by three serious modifications in the ecology and economy of these Coast Lapps which we will present in the following paragraphs.

A. The emergence of extensive reindeer nomadism among the so-called Mountain Lapp groups was the most direct cause of a reduced scale in Coast Lapp transhumance. From the last decade of the seventeenth century we learn, from some complaints that Coast Lapp groups in Finnmark addressed to the Norwegian (Danish) authorities, that Mountain Lapp groups from the interior came in the summer with their larger reindeer herds into what were still regarded, by custom

5 Observations of local informants.

6 Lilienskiold, 1942; Leem, 1808.

(of usufruct?), as Coast Lapp (familial?) pasture and hunting areas. The Mountain Lapps, it is alleged, frightened away the wild reindeer. The nomads' reindeer herds ate the mosses the Coast Lapps needed for their own smaller herds during the long winter, and trampled underfoot, and also ate, the grasses which they needed for their cattle and sheep.[7] By the end of the seventeenth century probably only the islands off the coast were left unaffected by the Mountain Lapp summer migrations.[8] It became increasingly difficult for the coastal population to retain its herds even at their traditional size. Unless they kept their reindeer within the neighborhood of their settlements and under constant surveillance, the animals became mixed with those of the nomads, whose herds sometimes numbered thousands.[9] It seems that by the middle of the nineteenth century only a few Coast Lapp families owned even a small herd of reindeer. Today, no Lapps who are permanently settled down by the coast engage in herding, even should they own some reindeer (as they do in very few instances).

B. Until quite recently a sufficient supply of fuel was one of the main considerations that determined the location of a Coast Lapp settlement in a Finnmark fjord. Today this is no longer true. This exceptional condition is owing to the wide introduction of peat, which is now the most important fuel item, supplemented by either wood, where that can be obtained easily, or by bought coal, where the household cannot do without it and when they can afford it.

On the basis of the calculation of several informants from the Revsbotn district, it may be supposed that peat first came to be used there as fuel about forty-five to fifty years ago. When the shores of the fjords were still thoroughly wooded, the inhabitants were able to settle where they would, so long as there was fresh water at hand. In fact, they sought the sites that would best combine good fishing prospects and provide shelter from an off-shore wind, with a reasonable pasture. When all the wood around a particular site — and at a later stage in the historical process, in a particular area — had been exhausted, the settlement would be shifted. Such movement was probably a periodic feature causing little trouble; indeed it would be quite in harmony with the transhumant life that had been practiced for so long. But, when the wooded areas had become well separated and, coincidently, when the transhumant year was no longer such a common feature of the Coast Lapp life, the movement after wood must have been of critical importance and often a hardship to the family group. It was then, it seems, that these people

7 According to sources of the 1690's: Adelaer, 1938, pp. 296-298, and Lilienskiold, 1942, p. 126.

8 Solberg, 1938, p. 295.

9 Westen, 1938 (from 1720's), p. 125.

began to dig peat. This meant that, as soon as the change-over from wood-burning had been accomplished and each homestead had found a peat bank, the population no longer needed to congregate around the diminishing wooded areas: the families could again live as far apart from each other as they wished, without recourse to foraging expeditions on account of fuel. As far as this goes, the introduction of peat fuel could have meant a decrease in the amount of shifting movement inside the fjord. This, however, was very often not the case. Peat could be successfully dug in many different places and dug close to the homesteads; the freedom of choice of location that was now offered, just as it re-introduced conditions approaching those that had been enjoyed earlier, also re-introduced the fjordal "wandering." This persisted for as long as the simple and easily erected turf and wood hut *(gamme)* remained the common type of dwelling — until no more than twenty years ago.

In Figure 2 the problem of the fuel supply is related to the factors of movement and type of settlement. A chronological interrelation has been attempted; this must be treated only as an approximation.

It is evident that the Norwegian coastal population in Finnmark, during the years between the two World Wars and earlier, has not understood the "characteristic" (say the Norwegians) predilection of Coast Lapps for "wandering" from one fjordal settlement to another. (Although, from an earlier period, Norwegian behavior in Finnmark has been most similar in this respect.) Nor could it have been understood from a study of its contemporary circumstances alone; it persisted and, as we have hinted, acquired in part a new cultural form despite the passage of the original situation that had, in a much earlier period, provoked it. Regarding *official* attitude, we note, over a wider time-span, certain land legislation that came to attach a legalistic aspect to the provincial demography; something that was in itself a most innovatory imposition, but also but a theoretical one for the most part.

A proclamation of 1775 had allowed persons to register and legally occupy land in Finnmark; prior to this all land in Finnmark had belonged to the crown. At the time of the proclamation it was maintained vociferously that frequent movement of dwelling-places and felling of trees had caused the spoiling of pastures and meant an extravagant wasting of the crown lands. The proclamation was not intended as a concession but as corrective legislation that would restrain both the Norwegian and the Coast Lapp, particularly the latter, in their traditional movement from place to place. It was stated in the proclamation that should a property be left vacant and neglected for three years, then it would revert to the crown. In fact, the proclamation had little effect; in 1826, and again in 1863,

Date	*Type of fuel*	*Amount of fuel*	*Type of Movement*	*Main Activities*	*Type of Settlement*
Before 1700	only wood	abundant	4-seasonal transhumance from beyond base of the fjord out to off-shore islands	fishing and hunting (incl. wild-reindeer hunting); small herds of reindeer, some sheep and goats	small, separated *siidâ* groups; several seasonal dwellings
1700—1800	only wood	still common	rather reduced transhumance (2-seasonal and «fjordal wandering»)	as above, but — less wild-reindeer hunting, fewer domestic reindeer; cattle as well as sheep and goats	small-groups, centered upon fjordal areas; several seasonal dwellings
1800—1870	only wood	becoming locally less common	similar transhumance as above	tendencies of previous period accentuated; summer fishing in connection with Russian Trade	as above
1870—1917	*wood* and peat	critical period	restricted movement; few instances of a 2-seasonal transhumance and some new colonization at the mouth of the fjord (Sauhavn)	summer fishing and hunting; sheep, cattle and goats; oxen	periodical change of settlement; summer-places within fjord
1917—1930	*peat* and wood	peat pits dug near settlements	almost no transhumance, but some «fjordal wandering»	winter fishing and hunting; sheep and cattle, fewer goats, horses; some summer fishing	settlements becoming more permanent, still well separated
1930—1954	*peat* and wood and coal	peat common in most areas (coal main fuel out at Sauhavn)	isolated instances of transhumance (using motor-boats); little «wandering»; virtually wholly sedentary	winter fishing; sheep and cattle; cultivation of soil; some summer fishing and little hunting	changes in dwelling types; after the war — larger clusters of settlements and dependent settlements

RUSSIAN TRADE PERIOD

FIG. 2. Relation of fuel to movement, activity, and type of settlement in Revsbotn Fjord (schematic).

official complaints were written over the persistence of the Coast Lapps in their transhumance. Evasions of the proclamation of 1775 were commonplace. By a law of 22nd June 1863, the inhabitants of Finnmark were required to *purchase* land from the crown; by the earlier proclamation land had been given by the crown. The same law placed certain limitations on the number of separated properties a person might legally own and efforts were renewed to get the population, especially the Coast Lappish, to take out deeds for their properties. However, the legislation still met with little result. We know that Coast Lapp transhumance continued after 1863 and that Coast Lapp "wandering" was a prevalent feature of fjordal society between the two World Wars. In the case of the properties in Revsbotn fjord, the earliest entries in the land registers date from 1858 and 1868, but there were only a few registrations made in the nineteenth century; even as late as in 1945 there were still a number of properties in the fjord in respect of which there was no official registration — nor ever had been.

A further land law, of July 1903, reflected another source of official apprehension over the future of the province. This law made it necessary for anyone who wished to purchase (crown) land in Finnmark to be able to speak, read, and write Norwegian and use it as their everyday language. A clause was inserted to the effect that sales of land should be made only to those persons who were "of a class that befitted the district." This was particularly directed against the alleged increase in the number of Finnish-speaking immigrants who entered the province without any visible means of material support. By the law of 1903 the greater number of Lappish-speaking persons could have been disqualified from making any purchases of crown lands; but it is most doubtful whether the Lapps at that time were sufficiently cognizant of such matters of juristic formalism to heed the law should it have been enforced to their disadvantage. The letter of the law was rarely implemented.[10]

C. From the middle of the eighteenth century up to the beginning of the twentieth, the "Russian Trade" (Nwg. *Pomorhandelen*) so dominated the period that little beyond its circumstances emerges at all clearly from a consideration of Coast Lapp economy of that time.

The cargoes brought by the Russians in their trading schooners were extensive: beside grain and meal of various types, that constituted by far and away the most important commodity, they included birch-bark packed in large rolls, planks and other timber, hemp, flax and rope, linen and nails, fishing-tackle and sailcloth, tar and copper.[11] Most of the grain and meal was traded direct with the fishermen, but

10 Qvigstad, 1924; Spilling, 1937.

11 Buch, 1813, p. 262; Brooke, 1827, p. 263; Kolsrud, 1955, p. 127.

before proceeding to the local fishing grounds the miscellaneous cargo was traded in the small Norwegian ports. In the beginning, the trade was conducted as a simple and exclusive barter. The Russians were most interested in obtaining halibut and for this they would exchange meal weight for weight; coalfish, the most common catch, would fetch only half, or less, of its own weight in meal.[12] By the 1890's the Russians had began to deal in money, and by 1914, in the last years of the trade, the straightforward exchange of goods had ceased. Yet field material suggests that the appearance and much of the idea-associations of a barter were retained until the end (1917). It is especially important to notice that the Russians traded in the middle of the summer which had always been a closed period for the Norwegian buyers, owing to the swarms of flies that soon managed to spoil any fish that was hung, through laying their eggs in it.

But the Coast Lapps were compelled, at other times of the year, to enter into limited credit relations with Norwegian shopmen. This was mainly in order to purchase their fishing equipment and the other few articles (coffee was one) that they were unable to procure from the Russians. Their debts were usually safely met, however, and the money for their taxes found too, by their winter fishing. It appears that the Norwegian fishermen ran up more considerable debts, for their *stabbur* (Nwg.) economy and measure of self-sufficiency were never comparable to the Coast Lapps'. The *stabbur* was the store-house and larder of a homestead in an apparently semi-subsistence economy; it was here each family stored their butters, cheeses, meats, eider down, skins and more besides, in addition to the flour which they had obtained in barter, and the coffee, sugar and cloth that they had purchased. It is clear from an earlier period too, for which there exist literary sources, that the Coast Lapp population had had a more stable and self-dependent economy than the "colonial" Norwegians in Finnmark. If the Russian trade further delayed the occasion of the Coast Lapps' dependence upon Norwegian shopmen it was because it was made the hub around which their economy and cycle of activity were arranged. It was the Coast Lapps' practice of supporting livestock on Russian flour that most emphasized the particular form of what was probably their first period of unequivocal economic dependence upon resources beyond those of the individual families. One direct consequence was that little was done to develop the land and build up a second livelihood, and that even the supplies of fresh milk, cheeses, and butter, and of meat, were related to the degree of mergence into the trade.

In this way the Russian trade overtly identified the Coast Lapp culture still more closely with the sea and tied their basic economy more firmly to it. Yet it also provided the means for a continuation of a pastoralism — that was exclusively con-

12 Helland, 1905, vol. 1, p. 781.

cerned with cattle and sheep — and a more or less subsistence (non-monetary) economy. The paradoxical situation is best explained through noticing the character of the pastoralism. It was fitted into the annual cycle of movement and managed to exist alongside the fishing culture with the least disruption and inconvenience. No effort was made to cultivate good pasturage. Certainly a little scything was done, but it was of the minimum and it was always in the out-field. The only real concession lay in the consideration given to a suitable "summer-place" for the livestock. This was the traditional feature of the Coast Lapp transhumance that survived the longest; but even it was selected primarily for its fishing possibilities and only secondarily for its pasturage.

FEATURES OF CONTEMPORARY BASES

While the natural resources were incompletely exploited and while there was little technological invention, it appears that these people were without impulse to live and work in larger aggregations. The one group-sentiment that I have been able to uncover was consonant with the ecology: "the people were restless then [when they lived in their *gamme* huts]; they wished to be free to wander from one place to another." With the introduction of peat working, around the turn of the last century, and the withdrawal of the Russian trade in 1917, a very different total situation appeared. The matters of exploitation had to be resolved more rationally and, in place of the previous restlessness and its accompanying attitudes, there began to emerge from that juncture forward, and hand-in-hand with the ecological and economic adjustments, another appreciation leading directly to a group-sentiment for closer and more comfortable settlement. It is these latter developments that we come to examine more closely.

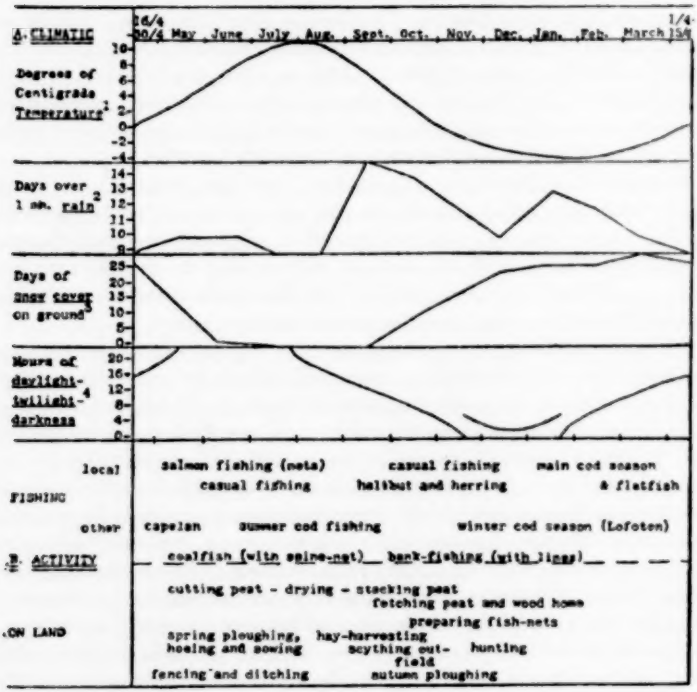
Inspection of the *personal pante-register* from 1850-1935, for Revsbotn fjord and the neighboring fjord of Repparfjord, reveals in the most succinct manner the degree to which the Russian withdrawal disturbed the nineteenth century pattern of Coast Lapp economy. In contrast to those from earlier years, most of the entries made between 1917 and 1935 concern personal debts, either to a shopman or the local tax office, and mortgages of property. It was during those years that the first Coast Lapp endeavors were made towards the mechanization of their fishing and the improvement of their dwellings. These individual and small, yet most formidable projects were, nearly without exception, undertaken on mortgages and bank loans. For the progress since 1945, "spectacular" is not a reckless description. The State initiated the North Norway Plan; beside providing financial and technical assistance in the period of post-war reconstruction, the Plan has sought to encour-

age, and lay the bases for, future economic and cultural development in the far north of the kingdom of Norway. To Revsbotn there have come, either through state or private enterprise or from a combination of the two: a modern shop (first in 1934, re-built on a larger scale in 1952-53), a coöperative fish-quay (in 1953), a café (in 1953), and a modern state primary school with boarding arrangements (in 1956). All now live in modern houses; in 1956 a public electricity line reached the fjord. Road and telephone line reached Revsbotn before 1939.

The systematization that now characterizes the organization of the farming year in Revsbotn is nothing less than a new, rational and deliberate approach to the land. This is witnessed in the hard labor of claiming cultivation from the rough out-field, the attention paid to its drainage and manuring, the assiduity with which berries are collected from the neighboring hills, the reformed ideas concerning local deforestation, and the value placed on an enclosed hay meadow.

No longer is the fjordal population so loosely organized as it was while transhumance was practiced. A fisherman-and-small-holder no longer has fairly intimate knowledge of the whole geographical area of the fjord. He has become more intensely identified with one particular portion of the area. No longer is his ecological cycle (the year) related to changes in place as well as those of activity, but, tied down to a more rigid and vigorous schedule, simply to those of activity. He is concerned with utilization and (should proper marketing opportunities be presented) productivity. The first steps were taken with the removal of the settlements away from the perimeter of the fjord and with the erection of new homesteads (in the place of the *gamme* huts) in the middle of an area of pasture. For the fisherman of the earlier period, it was the water's edge that had been the area of importance. It was here he had his boat pulled up ready on the shore and his nets drying and fish hung; and from the window of his *gamme* he would watch, in the summer, for the well-known signs of a shoal of coalfish in the fjord, and in the winter, for the weather to clear so as to give him a chance to visit his nets. His fuel lay near at hand. But the richness of the soil only a few hundred yards farther inland was ignored and his livestock often failed to survive the long winter (until the return of the Russian traders) for want of nourishment.

Greater utilization of resources has produced a full two-economy attitude as the *sine qua non* of fjordal economy today. In Revsbotn, 56 out of 68 active males are employed in fishing and 36 out of the 42 households own pasture and 30 of them own livestock. The persons not engaged in work on the land are not those who own either a motor-boat or a seine-net and are heavily committed to fishing, but the very old in the village or the newly married who have not yet managed to



[1] The graph represents the calculated annual mean for Revsbotn (Hammerfest and Kistrand readings, 1901—1930).

[2] A given point on the graph represents the normal for 30 days: 15 days before and 15 days after the given point (Hammerfest readings, 1901—1930).

[3] *ibid.*

[4] The graph shows the number of hours the sun is over the horizon at Hammerfest. The curve within the 'dark period' indicates the hours of twilight (when the sun is less than 5 degrees below the horizon).

FIG. 3. Climatic and activity year.

set up their own homestead-farms. There is little tendency apparent that would neglect one of the two economies in favor of concentration upon the other. The menfolk are members of the local branch of the Farmers' Association (inaugurated in 1933) as well as the Fishermen's Association (inaugurated in 1934). Each of the two economies has become identified with a season: fishing with the winter months and farming with the summer months. It is in the autumnal period that labor (that is still needed) may leave the land for fishing outside the fjord.

Yet a certain inequality does, at present, attend this division. In Revsbotn in April, when the men look back on the winter fishing season that has just come to a close, they count their takings; depending on the size of these, it was either a good or a bad year. When it has been a bad year, one will hear such remarks as: "And *that* money has to last until next winter, for now I have to work on the land, and there's no money there." This is because the fjordal communities are still lacking the necessary marketing facilities and the homestead-farmers, aware of the impossibilities of selling much surplus milk, are reluctant to increase the number of their livestock. (A recent, "planned" attitude, flatly the opposite, was the case only thirty years ago.) But this position has not discouraged new endeavors on the land. The promises of the North Norway Plan are at the back of peoples' minds, and the state is refunding the main portion of money put into the land. Only in this way could some of the men of Revsbotn have spent £75-100, or more, on their land in the last few years (£100 is a good average figure for a winter season's fishing). Others still retain a more cautious attitude: "I am interested in the possibilities that exist in farming, but need the help of a tractor"; yet others claim that "When I bought this land, I did so with an eye to its farming potentialities." Most of such opinion is really very much the same as that of the inhabitant who said: "It is not in me by upbringing or blood to be a peasant, but as a family man I must have a little land" — although it is usually less candidly expressed.

Whatever may result, the physical foundations of an agricultural community have been laid in most of the fjords. Between the years 1940 and 1954, ten new properties were bought in Revsbotn alone, including several valley properties, on all of which work began almost immediately. It is recognized that farming has become a necessary undertaking, but also a big undertaking in which the individual is to expect help from the state. Yet for a period of time it was only in the terms of the culture (Norwegian) responsible for its introduction that this second economy was deemed necessary. With its economy based almost entirely upon fishing, Revsbotn, for example, could have maintained itself satisfactorily as a society with definite and *unchanging* ecological relations. But Scandinavian society — on the withdrawal of the Russian trade and the extraordinary conditions it had sponsored —

presented the Coast Lapp enclave with a competitive situation. It became necessary for these fjordal people to cultivate the soil if they were to maintain an equilibrium in their relations with fast widening cultural and economic environments.

On learning to cultivate the soil these people largely abandoned their earlier hunting activities. Today there remain in the district but a few impulses and a few visible traces from the not-so-long-past days of serious hunting and occupational hunters. Hunting has not in anyway become a lowly occupation, but one that no longer pays and one for which there is no longer time. Good money is now to be found in fishing and the land demands much labor.

Much of early scepticism towards work on the land probably arose out of the reputedly poor prospects that would attend any cultivation in that area. This only reflected the traditional ecological bias of the society: it arose out of the fisherman's prejudice concerning the soil and not his experience of it. The obvious corollary to this has proved to be largely true: the fjordal inhabitant has been, in many cases, more stubborn and conservative in his attitude towards the sea and to fishing. The relative lack of response among the Revsbotn fishermen to the various kinds of fishing done outside the fjord and their concentration upon the local in-shore fishing is axiomatic. (But it is also a subject of interest in another respect too: see the following section.)

In the in-shore fishing, news of which grounds are being used and which are fishing well, etc., is exchanged freely, any exceptions to this practice of *bonhomie* being regarded with disdain by the remainder of the fishermen. The villagers of Revsbotn believe this amicable exchange of information and common use of knowledge and of the grounds themselves injures no one and benefits all. There is evidence to suggest this may be an autochthonous trait; we may note here that the point of view is consonant with the present local circumstances of the fishing. One may usually depend safely upon the regular appearance of winter cod at the base of the fjord in sufficient numbers for all: "Because the fish come to their doorstep, the people of Revsbotn have had no need to venture out of the fjord" [a local merchant]. When there is a bad year, it does not ordinarily mean that there is no cod in the fjord, but that throughout the whole of the two to three month period of the winter season there is *little* cod. The season is long enough, and the fishing grounds sufficiently localized, for all to make the best of a bad season and the very best of a good season. Partly because of this, and partly because of the practice of goodwill, the results of a winter's fishing among the people of Revsbotn do not differ considerably from one boat to another. These differences are least after a bad season and slightly greater after a favorable season — when it is said that so

and so had "better luck." This is because a season with an excess of fish in the fjords affords greater chances to the keener and more energetic among the boats-crews. This last fact dispels any idea that might have arisen as to an actual egalitarian practice among the local fishermen.

Nevertheless, the relative uncompetitiveness of this fishing contrasts sharply with other types. For the first, there is the fully-mechanized inter-fjordal and coastal fishing, using seine- and small trawl-nets. This is a feasible undertaking (as crew) for most, and other Coast Lapp communities in the district engage in it (cf. the following section). Secondly, there is the deep sea fishing with lines, on the banks beyond the fjordal and in-shore waters. This is a less feasible undertaking for fjordal communities, on account of both local geography and the more competitive entry to this fishing. Certainly the attraction of the "big fishing" out on the banks (and as I heard the phrase used, it usually contained a pointed contrast at the expense of the in-shore fishing and fishermen) seems to be a more predictable trait among Norwegian youth than among those of Coast Lapp settlements. Nor do I believe that Coast Lapp parents encourage their young men to enter into bank-fishing, whereas (the impression is) Norwegian parents more willingly accept it as a conscious ideal of their youth (and of their forefathers before them). But to stress this line of distinction between the Norwegian and Coast Lapp fishing communities, *per se*, would be unwise; such differences now tend to resolve themselves into the simpler ones of material opportunity and of access to fishing grounds. And quite fortuitous, external factors can be a determinant — to which we turn next.

OBSERVATIONS ON THE NATURE OF THE CHANGES

The last years of economic change among the Coast Lapps have been of more radical consequence than any other because their new economic disposition has determined, often in great detail, their cultural disposition.

It appears that economic specialization had been largely responsible for the earlier inter-group distinctions within the Lappish world in Finnmark; yet such economic specialization also created (or further emphasized) conditions for economic exchange between Coast Lapps and Mountain Lapps, thus making necessary the retention of inter-group ties. It was still possible at the time of my field work to obtain a fairly clear idea of the context of this exchange. It demanded true reciprocity in goods and services, without particular reference to return payment within a specified period of time. The reciprocity was usually maintained between particular families or small settlements and camps of the respective groups. No recourse to the monetary system was necessary because the value of those things

that each family-group had to offer to the other could be understood without reference to any outside symbol (for which there was little use anyway). The exchanges varied little, for the "access" and "paucity" each group experienced remained very constant. The only determinable variation, particularly in labor but also in goods, was a seasonal one. The exchanges became institutionalized socially.[13]

Here too, it was the withdrawal of the Russian trade in 1917 that provoked the beginnings of the more serious and deep-going separation between the coastal and mountain Lappish populations in Finnmark. It placed the Coast Lapps within the monetary system and added considerably to the list of "needs" that they require and which the other group cannot supply. Such economic exchanges as remain are usually conducted with reference to monetary value. — Meat that is worth so-many *kroner* (the official prices for meat will be more or less followed) is "exchanged" for, say, two pairs of woollen gloves worth the same amount of *kroner* (the housewife will be asked "the price" of the gloves). But the meat brought by the nomad is often paid for in cash; the nomad often purchases goods at the local shop in the fjords.

An incongruous fact, suggestive of inelasticity in the face of situations of change, is that the basic domestic unit, the household, still normally constitutes the main work and productive unit on land. Each individual householder attempts self-competence in working the soil he owns. Two neighbors, even two separate householders who share the same dwelling house, do not generally assist each other in their work on their farms, although they may be father and married son, or father-in-law and son-in-law, and although they may fish together during the winter. Otherwise, the domestic and the ordinary gambit of everyday relations, between neighboring and/or related households, are not characterized by such formal separatedness.

But this narrow familial basis to work on the land is experiencing strain; nor has the composition of the household ever been necessarily restricted to just the members of the simple family. It has been usual for Lappish households to have a working man and maid attached to them. Their status and role nicely indicate the *genre* of the economic organization in the previous ecological situation: their payment was made mostly in kind and after the elapse of a period of time, not on the completion of a specific labor; their relationship with the master and mistress of the household meant living together as well as working together, and they were made honorific members of the household. Today, while most Coast Lapp households retain a maidservant there are few (in contradistinction to Mountain Lapp

13 See Paine, 1957, pp. 249-251.

households) that retain a male employee. Instead, recourse is taken to hired seasonal labor paid on a purely monetary basis and on whose behalf no honorific extension of membership of the household occurs.

While the activities of a rural small-group society may be supposed to follow closely a pattern determined by the conditions of the natural environment, in fact that society can, at certain critical or indeterminate stages, impinge upon the relationship that exists between an activity and the natural environment. That this seldom happens is because it is essential, for it to be able to happen at all, that some new cultural (and technological) impulses be introduced and interposed in that relationship. Without the nearer contact with the Scandinavian culture that they have recently experienced, and without the introduction of the plough in particular, the Revsbotn society would probably not have begun, for example, on its agricultural venture.

The natural environment had not suddenly changed. Instead, the story is on these lines: On the withdrawal of the Russian trade from Finnmark in 1917, competitive fishing in an open market became necessary; the people of Revsbotn, at the base of a fjord, found themselves placed at an economic disadvantage in these new conditions. In 1925, an outsider, the first resident schoolmaster, entered the community. Beside introducing the first horse-drawn metal plough and the first sack of artificial manure, this man husbanded his land so that it became for the villagers, as he intended it should, a model-farm *par excellence*. Further experience gained from outside the fjord (during the wartime evacuation) gave added support to the agricultural idea, and finally, the state, for reasons of national policy, came to provide financial incentives for the new experiment — which the people of Revsbotn were already finding both economically sound and culturally becoming in the post-war society of Finnmark.

These developments on the land have been the main stimulant for the emergence in Revsbotn of a more economically competitive and sociologically more sophisticated organization. In Lillefjord, on the other hand, interest in the land is irrelevant (nor is there much land); and there it has been developments on the sea that have produced an organization dissimilar from that in the traditional settlements. Thirty years ago a Norwegian built a fish-quay in the natural harbor of Lillefjord. Motor-boats that had already been attracted by the good harborage (and by the good local fishing in 1920's in Lillefjord Sound), were now able to use Lillefjord as a visiting-base. Here, the crews were able to sell their cargoes of fish and re-provision, as well as just shelter from a storm. A personal accident, but not an unlikely one for Finnmark, completed the new picture. The son-in-law of

the Norwegian shopman was a professional fishing skipper and an owner of a motor-cutter and a seine-net. The shopman was quick to encourage a working combination between the men of Lillefjord and his son-in-law. The skipper found a reliable labor pool; the shopman secured another worthwhile client; and the men of Lillefjord (especially the younger) learned a new type of fishing, which they have come to consider as more congenial and more profitable than the type followed earlier.

Whereas in Lillefjord two-thirds of the men work from motorboats, in Revsbotn the majority continue as before with their local in-shore fishing from small open boats. The economic arguments, the suggestions of greater physical comfort, and the lure of work beyond the fjordal milieu, have not yet been sufficient inducements for many of them to change their habit. This is mainly because the physical conditions — greater distance from the mouth of the fjord and an open unprotected shoreline — do not easily permit this change to take place. (The few who do wish to try the bigger and mechanized fishing must make their own contacts and must fish among strangers.) The arguments and suggestions are still made from outside the village — in Lillefjord, for example, that is but a step over the hills from Revsbotn. In contrast to other "progressive" and "open" aspects of Revsbotn life, its fishing community retains a great deal of the traditional isolation.

Data from a third community within the same fjord reveal almost a total absence of recent specific ecological and economic development. Although we do not document this negative result here,[14] it is of equal methodological interest. Positive results (Revsbotn and Lillefjord) illustrate the axiom that economic sentiments relate to ecological contingencies and that as the latter are changed so there occurs economic transfusion. Negative results (within the same local area as the positive) suggest the absence of a "moral element" responsible for arousing the group-sentiment without which economic sentiments are unlikely to be aroused nor ecological contingencies changed. It is at this juncture that the specifically sociological investigation takes over from the ecological. But with regard to the latter, the discussion has noted the following:

(1) That none of the factors in causal chain of events in respect of Revsbotn and Lillefjord are related to uncontrollable changes in the environment: indeed, several of them must have been experienced at different times by people living in completely different natural environments. There is no direct ecological causal nexus, either in terms of place or time.

There can, however, occur changes whose causal explanation appears to relate wholly to changes in the natural environment. One example from the material

14 *Idem*, pp. 300-305.

presented is seen in those changes in settlement pattern brought about in connection with the problem of fuel. Perhaps another example, from an earlier period in the fjords, is that of the elimination of the reindeer from the Coast Lapp economy, but we know too little as to the detail of this process to be able to judge.

(2) The necessity for admitting at the outset of any detailed ecological-economic investigation the uniqueness, at any rate potential, of each most local "ecological community,"[15] the necessity of taking into account the various possible external circumstances.

This attaches definite limitations to any idea of ecological determinism, and we note in conclusion, on the one hand, Forde's "middle term" or "cultural pattern,"[16] and on the other, Nadel's concept of the "accident" in change.[17] The "middle term" exists between the physical environment and human activity, and it is determinable (as are the circumstances of Coast Lapp participation in that second area outside the fjordal areas). The "accident" in change, however, formulates the non-empirical and non-predictable in the human composition itself; it is an analogue of "moral element."

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15 See Hawley, 1950, p. 180.

16 Forde, 1948, p. 463; cf. Steward, 1938, *passim*.

17 Nadel, 1951, p. 103.

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ON THE ENVIRONMENTAL LIMITATIONS OF MAYAN CULTURAL DEVELOPMENT[1]

MILTON ALTSCHULER

THIS PAPER will deal with a double problem raised by Meggers[2] concerning the origin and development of Classic Mayan civilization. Meggers claims that an area whose soil is characterized as being of limited agricultural potential can neither give birth to nor support a high civilization. This is the rationale underlying Steward's[3] contention that the Tropical Forest culture of South America is derived from the Circum-Caribbean culture, and is the result of the diminution and filtering out of various features under the influence of the tropical rainforest environment.

Similarly, the deculturative effects of a limited environment on a high culture is illustrated by Meggers' work on Marajó Island at the mouth of the Amazon River. The Marajoara culture appears suddenly at the height of its socio-political complexity. Mounds were constructed, and potters and other craftsmen were engaged in a wide variety of special tasks. The archaeological sequence then demonstrates the course of deculturation to the Tropical Forest level.

> Complex wares . . . those utilizing two or more types of surface treatment such as slipping or double slipping with excision or incision and slipping with incision followed by painting, are most abundant at the earlier sites and decline markedly with the passage of time. Concurrently, the technical quality of the excised designs and the amount of vessel surface that they cover is noticeably reduced. The wares showing increases in popularity are with one exception (Carmelo Red) unslipped and the excised, incised or scraped decoration is applied directly to the vessel surface; in other words, the types of the increase are those that require less time for their execution.[4]

Another instance of the efficacy of the environmental limitations on cultural development can be seen in Rouse's[5] analysis of Circum-Caribbean archaeology, which demonstrates the sequence, Marginal to Tropical Forest to Circum-Caribbean without any further advance.

From the above data, Meggers derives three principles. If a high culture moves into an area of low agricultural potential, the archaeology will reveal that "(1) it

1 The author wishes to thank Dr Charles E. Dibble for his constructive criticism. The speculative portions of the paper, as well as any errors of omission or commission, are the author's responsibility alone.

2 Meggers, 1954.

3 Steward, 1948, pp. 1-41.

4 Meggers, n.d., p. 219.

5 Rouse, 1953.

appears suddenly in a well-developed state; (2) it does not diffuse to adjacent areas; and (3) its history is one of gradual decline."[6] Applied to the Maya, Meggers claims that the environment is one of limited agricultural potential and so the Classic Mayan culture must have been introduced from outside the area.

We will test Meggers' conclusions against the archaeological evidence and we shall see that the Mayan civilization, marked by the complex of the stela cult, corbeled arches, monuments, hieroglyphs, basal-flanged polychrome bowls, and tripod vases with covers, was not introduced from outside the area. The evidence will indicate that there was a period of development in situ, and then a rather sudden decline.

Our demonstration of the autochthonous nature of Classic Mayan culture will do little violence to Meggers' thesis. If she is basically correct, we should be able to correlate the decline of Classic Mayan culture with the environmental limitations. To do this

> the two components (environment and culture) must be treated on the same level. . . . In order to detect possible relationships, culture must be reduced to a similar level of generalization and specific features categorized under concepts such as "social classes," "occupational division of labor."[7]

This we will attempt to do after first examining some of the archaeology of the area, in order to define within limits, the possible locus of origin of Mayan civilization.

Examination of the underlying local Formative cultures reveals widespread trade, the beginnings of architecture, and a well developed art. This seems to indicate that the discontinuity between the Formative and Classic periods is not as clear-cut as Meggers maintains. On the contrary, Formative development into the Classic Mayan was fairly wide spread. Brainerd, in a Yucatan survey, found at the site of Uaxactun a high mound which produced almost pure Late Formative pottery. At Santa Rosa Xtampak

> a trench dug at the location of the eight Mayan stelae of the site pierced several floors. . . . All the pottery from under the first two floors and in the fill is Middle and Late Formative. It seems reasonable to conclude that at least the Middle and Late Formative periods in Yucatan saw the erection of massive religious centers by the large, well organized groups necessary for such tasks. Certainly, this part of the Mayan culture pattern began long before the stela cult.[8]

6 Meggers, 1954, p. 818.
7 *Idem*, pp. 805-806.
8 Brainerd, 1951, p. 76.

He concludes that there is

> no evidence of strong culture change occurring between the Formative and the following stage, although in the Peten the beginning of the erection of stelae and vaults form good markers. The available evidence, though meagre, suggests that large religious centers, presumably built under a theocratic government, began by Middle Formative times in Yucatan, and that this pattern continued on the same sites with no major upheavals until the Mexican penetration at about 1000 A.D.[9]

That the Formative period made an excellent base for Classic Mayan civilization was further indicated by Kidder's early excavations at Kaminaljuju, Guatemala. He had been unable to find rich graves or formal tombs, and all indications pointed to a simple unstratified society. It was later found that at this early period large religious structures were built. At one mound which was over twenty meters high, a random sample of more than six thousand sherds showed that they all were Miraflores (Formative). At San Jose, some 100 kilometers to the south, Miraflores pottery was found in two superimposed graves on top of a large terraced mound. Kidder maintains that "This of course settles the question of Miraflores mound building and makes it practically certain that the huge brickworks example was of that phase."[10] It appears that the Formative period can be divided into three phases, of which Miraflores is the terminal. The oldest is Las Charcas, followed by Sacatepequez. Shook and Kidder's later report indicates that pyramid construction may go back to Las Charcas. In any event, with regard to Mound E-111-3, the authors state that

> . . . it is now clear that the Mirafloreno had developed an economy sufficiently stable to permit great amounts of labor to be expended for nonproductive ends and a type of government, supposedly theocratic, that was capable of marshaling and efficiently directing the efforts of a large number of workers.[11]

In the Peten area, two Formative pottery sequences have been marked. The earlier is called Mamom and the later stage is called Chicanel. The type site is at Uaxactun. Ricketson speaks of Period 1 pottery forming two groups, 1a and 1b (Mamom and Chicanel). Period 1b is seen as a development out of 1a and is very likely

> contemporaneous with some of the primary buildings of Group E. Although the ceramics of this period have strong 'Archaic' affinities, it can not definitely be said to be out of the Mayan tradition, and should be described . . . as early Mayan rather than pre-Mayan.[12]

9 *Idem*, p. 77.
10 Kidder, 1946, p. 242.
11 Shook and Kidder, 1952, pp. 122-123.
12 Ricketson, 1937, p. 231.

This analysis of the ceramic sequence coincides rather happily with Morley's statement on the art and architecture of Uaxactun. Speaking specifically of the stucco-covered pyramid E-VII-sub, he says that the style of the stucco masks

> is such as to indicate strongly that at the time they were executed Mayan art was just beginning to crystallize as such. Indeed, they are so simple and undeveloped as almost to suggest a proto-Mayan origin, as though the esthetic complex we now call Mayan art was only just coming into being when they were molded.[13]

At Uaxactun, the first pottery style to be associated with dated stelae is Tzakol, which follows immediately after Chicanel. The continuity[14] between and among the ceramic sequences and art styles is further attested to by Proskouriakoff's recent analysis of structure E-VII-sub.

> Its decoration consists of 18 large masks, used in the design of the stairway. . . . Eight of the masks are conventionalized renderings of the serpent motif; the others are anthropomorphic faces, not without some animal characteristics. On the foreheads of these faces are scrolls which, in structure, resemble the earliest forms found on stelae, and forms painted on Tzakol pottery. . . . There is no question that the period to which they belong is in the direct line of the Mayan artistic tradition.[15]

In the Copan valley of Honduras, as at other sites, there is a discontinuity between the Formative stages and the Classic Mayan. The Formative pottery style (Longyear's Archaic)[16] consists only of coarse and burnished utilitarian ware, monochrome red or orange with simple modeling, grooving, and filleting. In the Early Classic period, these wares continue with decreasing frequency and parts of the Mayan complex makes its appearance. Throughout the sequence of Formative through Full Classic there is a steady decline in the frequency of animal and snail remains, which may indicate a change in the economic base from hunting and gathering to agriculture.[17] This implies the introduction of a religious and governmental authority already well developed, coming in from another area. The discontinuities between the Formative and Classic stages at Copan and elsewhere, coupled with the strong continuity found in Peten and the Yucatan peninsula in general, would suggest that the area may be the point of Mayan origin. Uaxactun, containing the oldest known stela date, shows the best stylistic continuity in art and ceramics, and also shows throughout its entire period of occupation, the most

13 Morley, 1938, p. 316.

14 J. L. Sorenson pointed out in a personal communication that a transitional phase, Matzanel, is now distinguished, emphasizing the continuity for which I argue.

15 Proskouriakoff, 1950, p. 102.

16 Longyear, 1952, pp. 22-23.

17 Longyear, 1951, pp. 86-92.

conservative development of religious art and style, indicating that the point of Mayan origin may be further contracted to the Peten area.

In addition to the purely archaeological material discussed above, Classic Mayan development out of a Formative base can be inferred in another manner. We agree with Spinden that Mayan religion, mathematics, and astronomy are not the collateral products of the civilization, but must rather "be regarded as the true cause and original ferment which produced these arts and ceremonies which now seem to us so wonderful."[18] Brainerd, in a similar vein, points out that "internal evidence from the Mayan calendar also assures us that calendric observations were taken during the last several hundred years of the Formative period, presumably by an organized Mayan priesthood."[19]

The brief survey presented above, while certainly far from being complete, does serve to indicate that the three environmental principles put forth by Meggers do not fit the Mayan data. However, we still have to explain the rather sudden decline of the Classic Mayan culture. Meggers maintains that "the breakdown came because the subsistence base, originally unsuited to the support of the occupational division of labor and other social features associated with advanced technology, was overtaxed to the point of collapse."[20] Now the problem of intensive agriculture and soil depletion in the Mayan area is still an open one. We will take the position here, that the breakdown came not necessarily because of an inadequate subsistence base alone, but more importantly because the "sociological imperatives" of the subsistence base as reflected in Mayan milpa agriculture were such that the maintenance of a class-structured state organization was, while not impossible, extremely difficult.

Franz Oppenheimer pointed out that man lives and obtains a livelihood by one of two basically opposed means. These are the political means and the economic means. He defines the economic means as "one's own labor and the equivalent exchange of one's own labor for the labor of others . . . while the unrequited appropriation of the labor of others will be called the political means."[21] This distinction serves to clarify the confusion put forth by Marxist theorists who view all manifestations of force, slavery, religion, and class as economic factors. Now economics is held to its proper sphere of limiting the development of the political means in a state organization. In other words, the political means are the coercive measures that buttress the developing techniques of economic exploitation. Oppenheimer, in righteous indignation, called this robbery. We will talk in terms of the administration and control of the forces of production.

18 Spinden, 1940, p. 164.
19 Brainerd, 1954, p. 20.
20 Meggers, 1954, p. 819.
21 Oppenheimer, 1914, p. 25.

Millon, writing on the development of the state in the Viru valley of Peru, claims that state organization implies the necessary existence of a class structured society, and that ". . . the key to the development of classes lies in the *development of control* over productive techniques necessary to the survival *by one segment of* that *society*."[22] He goes on to say that "what starts as a necessary *administration* of production becomes inevitably transformed into a *control* of production."[23] It would perhaps be best to speak of the control of some spheres of production, as total control would be too sophisticated at this stage. In Millon's theory of state development, the state organization is seen to be inimicable, as a basis for political organization, to a kinship organized society. With the development of the control of production, the kin groups are economically disenfranchised. In both situations, however, it is possible to have a class society. But in the state-organized society the classes are highly structured politically, whereas in a kin society, the classes are structured economically, as defined by Oppenheimer, and are somewhat amorphous in nature. The Maya of the Classic period were probably somewhere on the continuum between the two extremes. That this was so in late pre-conquest Yucatan is indicated by Roys who states that "Yucatecan society was also divided vertically into lineage groups. Many of these included nobles and commoners alike. . . ."[24]

If we can show where, because of their peculiar subsistence base, the Classic Maya were able to amass a food reserve to tide them over from harvest to harvest, but only a limited surplus above the necessary reserve, and that milpa agriculture favored the administration of production rather than its control and hence had a government but not a state, it would be reasonable to assume that the class system was in Oppenheimerian terms, kin-based and economically structured, but politically unstructured.

Mayan agriculture practices, by their very nature, did not involve the necessary development of central control for their ordinary operation. Such administration as was needed was probably done on a kinship base, either through the family or lineage heads. Construction of the many religious city centers required some form of governmental authority for obvious reasons. But governmental authority per se does not necessarily imply a state organization with a politically structured class society. What is involved in governmental authority according to Millon is

> the concentration in the hands of a few members of the kin-group — of the self-acting armed power of the entire group. But this concentration is an *administrative* concen-

22 Millon, 1952, p. 51.
23 *Idem*, p. 52.
24 Roys, 1943, p. 35.

tration. It involved no *control,* of force by those entrusted with its administration. . . . State power, on the other hand, is based upon monopolization of force — upon total *control* of it.[25]

The class structure which developed in the Mayan "Old Empire" was poorly developed politically. Its content and techniques of expropriation were largely religious in nature. It was the religious values of the peasant population that allowed of a ready source of labor for the construction of the cities and monuments.

Recently the question of Mayan urbanism and its nature has been raised. Willey points out that

> the formal demographic requirements of urbanism, in the strictest sense, do not seem to be present in the Mayan lowlands in Classic times. . . . Yet lacking this, the Maya achieved city life in the broader sense, for many of the attributes of civilization . . . are clearly present.[26]

Seemingly the settlement patterns of the Classic Maya represent something of an anomaly in terms of other known urban patterns. Shook and Proskouriakoff avoid the problem when they say that the Maya had a "significant stage of urban growth" and that it is not necessary to state "more precisely the degree of economic interdependence or the type of social organization that such a stage entails."[27] We suggest that the "anomalous" urban settlement pattern is related to an economically-structured class society. "Traditional" urban settlement patterns seem to relate to politically structured class societies.

The problem is now before us. Can we account for the sudden decline of the Classic Maya in terms of socio-environmental factors? Out of the economically structured class society there developed a rapidly growing class of priests and nobles. This is inferred by the increase in size and complexity of the temple constructions. At some point the priests and nobles began to require a food surplus over and above the reserve needed to tide the society over from harvest to harvest. But only a ruling class that has developed the techniques of expropriation, as in the so-called "Hydraulic Civilizations," can demand and exact an increasing surplus. And the surplus can only be forthcoming if the agricultural base permits. The ruling class did not develop the techniques of expropriation because of the lack of *necessary* control inherent in the milpa system of agriculture. Further, while the question of soil depletion is still an open one, the *normal* climatic factors that control the success or failure of the harvest, leave such a narrow margin of safety,[28] that a surplus as distinguished from a reserve, cannot be guaranteed. The insistence

25 Millon, 1952, p. 51.
26 Willey, 1956, p. 780.
27 Shook and Proskouriakoff, 1956, p. 93.
28 Hester, 1954, pp. 23-27.

of the ruling class upon a surplus under these environmental and sociological conditions, can, if it persists, lead to social disorganization. Thompson[29] speaks of a series of peasant rebellions. The peasants may have refused the exorbitant demands of the priestly hierarchy for increased food and labor. Lacking well-developed techniques of coercion, the theocratic elements would have been helpless in the face of armed peasant resistance. There is, of course, no one prime-mover. It may have been that all of the above factors were coupled with disease brought on by contamination of the water supply. Dense living conditions and the shallow water table would have required strong controls which seem to have been lacking. In any case, Coe's statement that the "lowland Mayan accomplishments deserve to stand as an impressive rejection of the 'Law of Environmental Limitation on Culture'," [30] can perhaps be modified. While Meggers' environmental determinism is clearly untenable, it would appear that the limits of environmental probabilism are quite applicable. The Classic Maya are a special case of environmental limitation.

SUMMARY

We have examined the archaeology of the Mayan area, and the evidence indicates that contrary to Meggers' position, the Classic Mayan civilization was an autochthonous development in an "area of limited agricultural potential." In terms of the decline of the Classic Maya, Meggers' view is that the Maya came into the lowlands a class-structured society and then broke down because of an inadequate subsistence base. Our view is that the sociological concomitants of milpa agriculture plus the uncertainties of the harvest were such that certain sociological possibilities could be profitably exploited and others could not. In other words, the area could easily support, and did, an economically-structured class society, governmentally organized. It could not easily support, and in fact did not support, a politically-structured class society that was state organized. The breakdown came when a political structuring was attempted by a ruling class that lacked well-developed techniques of exploitation.

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29 Thompson, 1954, pp. 84-90.

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THE FORMAL ANALYSIS OF PRESCRIPTIVE PATRILATERAL CROSS-COUSIN MARRIAGE

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THIS NOTE is part of a theoretical and comparative study of prescriptive marriage systems. Its purpose is to examine the structural entailments of a particular prescription, but I have also made it the occasion of more general observations. These may, I hope, prove of rather wider interest than a purely technical note; and the article, together with another that I have written,[1] may form a convenient introduction to the study of these systems.

I begin with a brief survey of the development of the analytical concept of "exchange" in the study of marriage regulations; then summarize some major points of Lévi-Strauss's arguments concerning prescriptive marriage, and specifically patrilateral cross-cousin marriage; next examine the views of other scholars on this form of marriage; then propose a new formal analysis; and conclude with some empirical instances relevant to the formal analysis.

I

There are considerable analytic advantages in regarding certain types of marriage regulations as means of effecting the exchange of women. Mauss appears to have been the first to suggest this (in 1920), though in his essay on the gift he merely mentions and does not enlarge upon this particular aspect of exchange.[2] The notion was taken up, not (as might have been expected) by Malinowski and his followers as an example of "reciprocity," but by Dutch scholars[3] such as J. P. B. de Josselin de Jong, van Ossenbruggen, van Eerde, and most notably by van Wouden.[4] These did not push the theoretical development of the concept very far, but they made a large contribution in beginning the comparative study, based on Indonesian ethnography, of a system of enduring affinal alliances between lineal descent groups for which they adopted the term *connubium*.[5] The type of con-

1 Needham, 1958.

2 Mauss, 1925, p. 37.

3 It is not generally recognized to what an extent the ruling ideas of the French sociological school, associated with the names of Durkheim and Mauss, were kept alive in the Netherlands.

4 See references in Needham, 1958.

5 This is to be clearly distinguished from the *marriage* linking two individuals. Cf. the Latin *cônûbium*, "alliance by marriage." In this connection, see the change in sense when the term *asymmetrisch connubium* in ter Haar (1946, p. 170) is misrendered in the English translation (ter Haar, 1948, p. 174) as "asymmetrical marriages."

It may be well to note explicitly at this point that such a system can only exist in a lineal

nubium which engaged their attention, especially since it is the only form certainly known to exist in Indonesia,[6] was that in which there was a general obligation to marry the matrilateral cross-cousin. This resulted (as they claimed, though the ethnography did not then show it) in the circulation of women throughout the society in connubial "cycles" linking the component exogamous groups. These groups then stood to each other, relatively and in particular contexts, as "wife-givers" to "wife-takers," status-designations whose great importance was demonstrated by the Dutch. But this work did not result in new field-studies in Indonesia, to refine the conception of this type of prescriptive marriage system and to increase the factual knowledge of how it operated. By the beginning of the second World War, after a number of valuable publications in the nineteen-thirties, published attention to the issue had practically disappeared. It revived only in 1951 with the publication of P. E. de Josselin de Jong's hypothetical reconstruction of early Minangkabau social structure, this work again being based on literary evidence and cast in the same theoretical form as that common to Dutch scholars in 1935.[7] In part, though, it was a response to a new stimulus from France, Lévi-Strauss's *Les Structures Élémentaires de la Parenté* (1949). It is part of the argument of this great work that I wish to examine.

II

It is necessary first to give a brief account of Lévi-Strauss's argument up to where he examines patrilateral cross-cousin marriage, for without grasping this it is not possible to understand the course of the article or the significance of the analysis.[8] The basic point to be appreciated is that in his book Lévi-Strauss is fundamentally concerned to analyze only what he terms "structures élémentaires," i.e. systems which *prescribe* marriage with a certain type of relative.[9] These are distinguished from "structures complexes," systems which leave the task of determining the spouse to other mechanisms, economic or psychological. In these the

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descent system, whether or not the descent groups are localized. Also, exogamous groups are not necessarily coterminous with connubial or alliance-groups (those corporately concerned in affinal alliances) and in reality are seldom the same. It is particularly important to bear in mind that the formal analysis which follows has to do *only* with a system of structural relations between *groups* in a lineal descent system.

6 See my note on kinship and marriage on Pantara (1956b) and Fischer, 1952, p. 114. (This is a convenient place to record that enquiries directed to residents on or near the island about the form of Pantara marriage have been without result.)

7 See also Held, 1953, p. 181. Keuning's competent study of Tapanuli kinship had appeared in 1948, but this was a descriptive work without theoretical ambitions (Keuning, 1948).

8 I have the impression, especially after some personal acquaintance with anthropology in the United States, that this may be particularly useful or necessary to American students.

9 Lévi-Strauss, 1949, p. ix.

wife is acquired through the transfer of wealth or through free choice, and Lévi-Strauss specifically applies this term to forms of marriage in Africa, where prescriptive systems are almost entirely absent, and in Europe, where they are totally absent. His arguments in this book, then, apply only to prescriptive marriage. They are not concerned with marriage arrangements which, short of definite obligation to marry a particular category of relative, merely show certain *preferences* for marriage with one or more categories. The defining character of a prescriptive system ("structure élémentaire") is its obligatoriness; while that of a non-prescriptive system ("structure complexe"), however marked its particular preferences, is choice. It is true that even the strictest prescriptive system allows some choice — but of individual, not category; and even the vaguest non-prescriptive system imposes some limits on choice — but not limitation to one marriageable category, or limits in any way remotely comparable in their specifications or consequences to those of prescriptive systems.

It is quite essential to be clear on these distinctions, for otherwise Lévi-Strauss's theories do not make sense. For instance, the Tswana, within a situation of fairly broad choice, declare a preference (among others, but preëminently) for marriage with a mother's brother's daughter; but it would be vain to try to analyze their marriage regulations and the relations resulting from them in the light of an exchange-theory intended to apply only to prescriptive systems. Worse, one might compare this society with another in which marriage with a woman of the category of MBD is actually prescribed (e.g. the Purum), be unable to reach any profitable conclusions, and then condemn Lévi-Strauss's notions as defective or useless. Similarly, it would be equally vain to take a society such as the Basuto, who prefer marriage with a first cousin (either the MBD or the FZD,[10] these being terminologically distinguished from each other), and to try to compare it, in the light of a theory of prescriptive systems, with a society in which marriage is prescribed with the cousin who is both MBD and FZD.[11]

Confusion has been engendered on this point by the fact that both prescriptive and non-prescriptive rules of marriage have in the past commonly been described as "preferential," and possibly that at some points in his argument Lévi-Strauss also (adopting the term from his sources or from current usage) uses the word "preferential" to denote marriages which are in fact prescribed. This has made it

10 Father's sister's daughter, "Z" standing for "sister."

11 Note that these terms are to be generally understood in the classificatory sense, as referring to categories of relatives, not to genealogically-defined individuals. The assertions I make here can be simply tested by making the comparisons referred to, which I intend to do in a further article on the differences between prescriptive and non-prescriptive systems and their importance in comparative studies.

possible to maintain (though not with any plausibility) that Lévi-Strauss intended his theories to apply to non-prescriptive forms of marriage also; and to prevent this error it is as well to emphasize that this cannot be the case. First, as I noted above, his arguments simply do not make sense if they are assumed to apply also to non-prescriptive marriage. Secondly, it cannot be mere coincidence that the societies to which he devoted the major part of his analysis — Australian aborigines, the Kachin, the Gilyak — undeniably have prescriptive marriage systems; while in his more speculative reconstructions of earlier forms of marriage in India and China he clearly seeks to prove the former existence of such systems. Lévi-Strauss does indeed at one point claim that exchange is the "universal form of marriage"; and elsewhere, in some comments on the passage from "structure élémentaire" to "structure complexe," he envisages the possibility of the notion of exchange being usefully applied to non-prescriptive marriage also;[12] but these observations cannot controvert the significance of the analyses which he actually carries out. There are other arguments, of some length and intricacy, but these suffice for the present purpose. Resort to the original text with a clear idea of what the issue is — prescriptive *versus* non-prescriptive — should bring conviction. In any case, whatever argument is possible about Lévi-Strauss's particular theories, it remains a fact of great analytical importance that there is a radical distinction to be made between prescriptive systems of marriage and all other forms of marriage.[13]

Lévi-Strauss distinguishes two major types of exchange of women: direct, in which there is reciprocal exchange between two groups (classic examples being Australian and Melanesian section-systems) and typically associated with marriage with the bilateral cross-cousin;[14] and indirect, with reciprocal exchange forbidden, in which prescribed marriage with the MBD leads to cycles of unilateral transfers of women between exogamous groups. These cycles of marriages are not in fact demonstrable from the ethnography that Lévi-Strauss uses, but examination of

12 I can see no way in which such a formulation might usefully be possible.

13 Needham, 1958, p. 75.

14 *N.B.:* Not either cross-cousin, but the cross-cousin who is structurally patri- and matrilateral. The word "bilateral" has ambiguous connotations, but this definition seems the most useful and precise. (In this connection, I should like to redeem my own ambiguity in using the term when — in an argument concerning patrilateral cross-cousin marriage — I wrote that in Kodi "bilateral cross-cousin marriage is practised" [1956b, p. 289]. In fact, as is clear from the context, marriage is with either of two cross-cousins who are structurally distinct.) A six-section system, though based on direct exchange, differs in the prescribed category; but in the other known section-systems marriage is prescribed with a bilateral cross-cousin (sometimes of a certain degree) and thus "typically." It is not yet clear precisely how a six-section system works, but it is evident that in any case marriage is necessarily with a bilateral relative.

other more useful sources does show without doubt that the cyclic feature of his model is paralleled in social reality.[15]

There remains another type of exchange, neither direct nor indirect but "discontinuous" ("échange discontinu"). This is that associated with patrilateral cross-cousin marriage, which Lévi-Strauss contrasts particularly with matrilateral cross-cousin marriage (see Fig. 1).

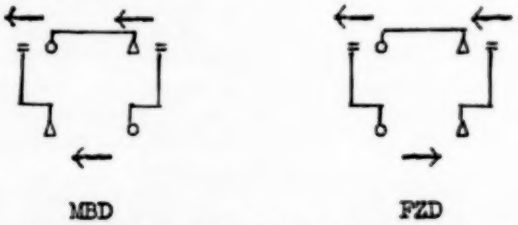

FIG. 1. Matrilateral and patrilateral cross-cousin marriage (after Lévi-Strauss, 1949, p. 551, fig. 85).

The fundamental point to be noted is that in a system with MBD marriage the transfer of the woman at each marriage and in every generation is in the same direction between any two affinally related lines. Where FZD marriage is the rule, however, the direction of the transfer in the second generation is the reverse of that in the first.[16] This results in what Lévi-Strauss calls a "closed system" in which a cycle of exchange is opened and closed: a woman is ceded in the first generation, another is acquired in the second (thus replacing the first), and the system "returns to a point of inertia." This form of marriage, he maintains, is only capable of forming a multitude of small closed systems, juxtaposed one to another, without ever attaining an over-all systematic character. (Matrilateral cross-cousin marriage, in contrast, unites any number of groups in an "open system," all being allied by affinal links of the same character from instance to instance and from generation to generation.) The most to be expected with FZD marriage is a "collective harmony" resulting in a mechanical and precarious way from the sum of the particular ties by which a family links itself, sometimes to one family, some-

15 Needham, 1957, 1958. This can also be shown on the basis of my own research on the island of Sumba in eastern Indonesia, 1954-55. These investigations convince me not only that the notion of "cycle" is usefully applicable in the analysis of matrilateral connubium, but that without it there is no way in which this type of society might fully be understood.

16 So far as I know, Fortune was the first to point this out, maintaining that any "line" gives to another line in alternate generations and takes in the intervening generations (Fortune, 1933, p. 3). He adds that he has not seen such a system in operation.

times to another.[17] This kind of reciprocity-structure belongs to a type which brings with it a "perpetual disequilibrium," the total set of relations being as fragile as each of the small local structures of which it is composed.[18]

But though FZD marriage does not secure an effective organic solidarity of the whole society it has a peculiar value: because its "ambitions" are so limited it is a more certain operation. That is, a man gives his sister away in marriage, and in return he gets her daughter back for his son, thus completing a "short cycle" of exchange, consisting of only two alliances. So for the family group, Lévi-Strauss argues, there is more security in this arrangement than in MBD marriage, where a woman is given to a group on which there can never be a claim for a woman in return. The length of the cycle of reciprocity, he formulates, is in inverse ratio to the security it affords. These considerations derive from the assumed perpetual alternation of direction in which women are transferred.

Lévi-Strauss concludes that patrilateral cross-cousin marriage is "not a system but a procedure," and that there is no law or formula that can cover its operation. Since it has no systematic character and does not produce an organic type of solidarity a society based on it is always in a precarious position; and, says Lévi-Strauss (though this is not a problem that I wish to consider directly in this note), it is for this reason that matrilateral connubium is far more common than patrilateral.

This account of the argument does not do the original justice, but it does, I think, convey the main points of the analysis. We are now in a position to consider later developments.

III

P. E. de Josselin de Jong presents an analysis basically similar to Lévi-Strauss's, showing in his diagram women being transferred in opposite directions in alternate generations, and stating that "in this way each clan functions alternately as bride-givers to and bride-takers from one other clan."[19] It is not formally necessary, of course, that the exchange-group should be a clan ("line" would perhaps be a better term), and a line need not be restricted to exchange with only a single group of any sort. In fact, in his diagram (which figures three lines) line A exchanges women with two other lines, B and C. There is a further feature of his diagram which is important but which he does not explain, and I shall comment on this below.

Leach also assumes the fundamental correctness of this analysis: "This system

17 Lévi-Strauss appears to believe mistakenly that such a situation of choice and optional alliances between lines is not characteristically found in a matrilateral prescriptive system.

18 Lévi-Strauss, 1949, pp. 553-556.

19 P. E. de Josselin de Jong, 1951, p. 35.

precludes the reciprocal marriage of a man with the sister of his own sister's husband, but it amounts nevertheless to a systematic exchange of women between two local groups. The exchange is completed after a time lag of one generation." He names this sort of marriage "Trobriand type" and maintains that it occurs in patrilineal as well as in matrilineal societies.[20]

J. P. B. de Josselin de Jong, in his critical exposition of Lévi-Strauss's theory, finds the argument concerning the "structural relation between matrilateral and patrilateral marriage . . . quite convincing."[21] He goes further than Lévi-Strauss, though, in maintaining that the advantages of matrilateral marriage over patrilateral "are so obvious . . . that its greater frequency would seem to be a matter of course." But he does not advance the analysis, and concludes by characterizing patrilateral cross-cousin marriage as forming a "bidirectional interrupted exchange cycle."[22]

Held, in an interesting incidental note which he unfortunately does not expand, claims that a patrilateral system without reciprocal features is possible: "descent in the participating four classes would have to be partly harmonic and partly dysharmonic. Then two of the four classes would form one descent group and the other two one each, so that we should have a system with four connubial groups but three descent groups."[23] The assumption that this patrilateral system should comprise four sections is unnecessary, and evidently derives from the argument of the work which Held was examining. It is difficult in any case to see what sort of system Held had in mind, and, as will appear below, I think it can be proved impossible to have a patrilateral system of any sort without reciprocal features.

An original contribution is made by Homans and Schneider, who point out that

> father's sister's daughter marriage, just like mother's brother's daughter marriage requires at least three lineages;[24] any one lineage is linked by marriage to two others in the ring, and the ring can be lengthened indefinitely. On all these counts it meets Lévi-Strauss's requirements for generalized [i.e. indirect] exchange. The only difference is that the men of B lineage, defined either patrilineally or matrilineally, give women alternately to the As and to the Cs instead of always getting them from one and giving them to the other. We might even go on to argue that father's sister's daughter marriage makes for greater organic solidarity, as the specialization in marriage is determined by generation as well as by lineage, and so creates a more intricate intermeshing of groups."[25]

20 Leach, 1951, p. 26.
21 J. P. B. de Josselin de Jong, 1952, p. 51.
22 *Idem*, pp. 55-57.
23 Held, 1953, p. 184.
24 Their diagram shows three lines: B, flanked by A and C.
25 Homans and Schneider, 1955, p. 13.

I shall incorporate in my own analysis the first of these stimulating observations, that there are in fact connubial cycles in this system also. The second point, however, seems invalid. Mere intricacy in the determination of the spouse does not of itself secure greater solidarity, and in general is more likely to do the opposite.[26] It is not intricacy alone but a specific relationship as part of an intricate system (such as an eight-section system) which may secure social solidarity; and in this case there is no comparable system. (Homans and Schneider also consider the affective and jural aspects of FZD marriage, comparing it in these respects with MBD marriage, but in this they go beyond the purely formal analysis which is my concern here.)

One of Homans and Schneider's points is also made by van Wouden, evidently quite independently, and with an additional useful observation. He states that with FZD marriage there is an exchange-relationship which in each succeeding generation is reversed, any generation then being in itself completely unilateral and circulating; but that the relationship of two partner-groups considered over two succeeding generations is, however, symmetric. "This system is asymmetric and symmetric at the same time."[27] He does not draw any conclusions about the solidary character of such a system, or analyze further the odd feature to which he draws attention.

The apparent existence even in a patrilateral system of a Lévi-Straussian "long cycle" such as is characteristic of indirect exchange is implicit also in P. E. de Josselin de Jong's diagram with its three descent-lines; for if they are to represent a system it is clear that in each generation there must be a complete cycle of marriages.

Note that five of these six sources speak explicitly of a patrilateral system of relations between groups.

The supposed combination of short cycle and long cycle, symmetry and asymmetry, in a system based on patrilateral cross-cousin marriage is certainly very strange; and it looks at the very least as though Lévi-Strauss is right and there is no formula to cover a patrilateral prescriptive system. If we carry the analysis further, though, we can discover more important aspects of the issue.

IV

A formal analysis has to be based on certain assumptions about social necessity, and it has also on occasion to be limited by empirical notions about what is socially possible. One assumption entails that for every male position in a model of a

26 Compare an eight-section system and a matrilateral system.

27 Van Wouden, 1956, p. 206.

prescriptive marriage system there must be a spouse available under the rules of the system. This forces us not only to expand the minimal diagram in Fig. 1 but to add a third line. Lévi-Strauss's fundamental model is illuminating about affinal relations between individuals and families, but it does not answer in a consideration of relations between structural groups such as lineages or clans. His diagram of short cycles linking five descent-lines,[28] on the other hand, includes more lines than are logically necessary and is on this count confusing. The logically necessary number of lines is three, giving us (assuming patrilineal descent)[29] the following figure (see Fig. 2).

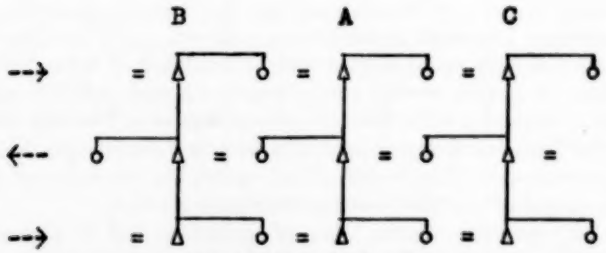

FIG. 2. Initial model of a patrilateral system.

The consequence of adding a third line is to establish a cycle of marriages in any one generation. Thus, in the first generation there is a complete cycle, closed by C giving wives to B. In the second generation there is also a complete cycle, but in the opposite direction, B in turn giving wives to C. Considered together, the cycles of any two succeeding generations are complementary, and the relation between any two lines is in this sense symmetric. In this model, then, which incorporates the advances of Homans and Schneider and of van Wouden, the system is indeed asymmetric (in any one generation) and symmetric (in two succeeding generations) at the same time.

Our notions of social possibility, however, prompt us to ask whether this model could adequately represent a society in terms of people on the ground. In this scheme a lineal descent group must be clearly divided into generations of marriage-

28 Lévi-Strauss, 1949, p. 562, fig. 86a.

29 Homans and Schneider maintain that this form of marriage is associated with matrilineal descent, but a patrilineal representation serves equally well here and is conventionally commoner. In any case, as the analysis proceeds it will be seen that it makes no difference which rule of descent one chooses to postulate.

able men and women, and each descent group must be similarly and congruently divided, in order to make the alternating exchange-relationship possible.[30] Only thus is is conceivable that each line should function as a group alternately as wife-givers to another affinally related line and as wife-takers from that line. This alternation could not be ensured by the simple rule that a man must marry a FZD, because of the variation in the ages of siblings and in the dates at which members of the same genealogical level may marry.

It is barely possible that the arrangement could work with the aid of a conventional division into arbitrary generations, and that the rule of marriage should be ceremonially declared at regular intervals, so that one generation would marry in one direction (in terms of the diagram) and the succeeding generation in the reverse direction. This might be feasible in a small society with good communications, but it is an arrangement so at the mercy of a multitude of factors that (quite apart from the question of what social advantages it might offer) it would be unlikely to constitute a viable form of marriage regulation. Moreover, whatever its practical features it is unsatisfactory as a theoretical answer, since the conventional generations would not be defined and regulated by any feature of the prescriptive system itself but only by an institution contingent to it.

The only invariably effective means of establishing such an alternation of affinal role by generation as the model demands is by some kind of section-system in which a man and his son would belong to different sections; but a three-section system with this marriage prescription and in which patrilateral and matrilateral cross-cousins must be kept structurally distinct is impossible.[31]

Since we cannot imagine an arrangement by which all the men of line A in a certain generation would be obliged to marry women only from line B the only way we can still try to use the model of three lines and retain the essential feature of alternation is to imagine the patrilateral rule operating somehow in a situation where some men of A at a given time will be marrying women from B and other men of A marrying women from C. To preserve the asymmetric character claimed for the system we have to represent it by a dual diagram, one part showing mar-

30 If there were no such alternation there would be reciprocal exchange within any single generation, which would mean another type of marriage system, not the particular type we are examining and of which alternation is supposed to be a characteristic feature (see the exposition of this below). Note that alternating exchange has the consequence that for successive generations of A the women of C, for example, are MBD and then FZD in alternate generations, which is rather curious.

31 Nor, of course, would a system based on a multiple of three serve, *viz.* a six- or twelve-section system. In both of these the MBD and the FZD are in the same section and anyway cannot be married.

riages to one side in each generation and the other part marriages to the other side (see Fig. 3).

But this does not really help, for since they represent a system these two parts must be imagined superimposed. It is then evident that in any one generation there are two opposed cycles, and these merge into a complementary double cycle of reciprocal exchange between lines. The same relations exist in any generation and persist from generation to generation.[32] Asymmetry, then, in the total system of affinal relations between lines, does not exist at all; and the system cannot in this context be characterized as both symmetric and asymmetric at the same time. The relation between any two lines is symmetric.

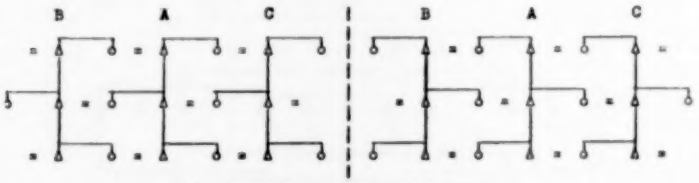

FIG. 3. Dual representation of the system.

It is possible that for a particular purpose it may be convenient to represent a single system by a dual diagram, but this method here conceals further important implications which are obvious in a diagram in which the sub-systems are actually shown merged (see Fig. 4).

If we now consider what sort of terminology of kinship and affinity could possibly fit such a system of relations between three lines we are led to an important realization. With reference to any one line the other two must share a common set of terms, since the relations with both these lines are precisely identical. For example for a man in A there are two structural positions which must be denoted by the term for "mother," one from line B and one from line C. Similarly, for every other genealogical position in relation to a person in A a common term must be shared by the person in or from B and by the equivalent person in or from C. Further, to preserve the terminological unity of the line common terms must be shared by all its members; so that it is not possible to distinguish individuals within one line according to the different origins of their mothers.[33] Given the systematic character of the total scheme, based on the double exchange-cycle

32 This in itself may be regarded as sign of a system, whether or not it could possibly correspond to social reality.

33 Which would be trying again to assimilate the scheme to a section-system.

(which entails that A:B::B:C::C:A), this means that we have the following structural oppositions in the terminology.

$$A : (B + C)$$
$$B : (A + C)$$
$$C : (A + B)$$

Since we cannot be dealing with a section-system in which A, B, and C each constitute a section, this scheme resolves itself into a structure which is radically

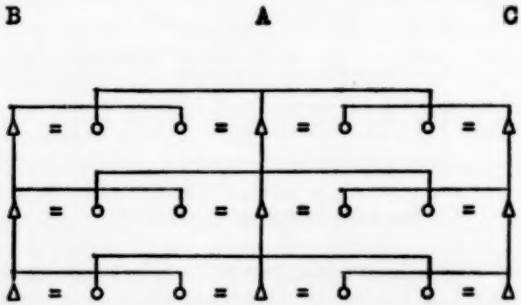

FIG. 4. Merged representation of the affinal relations.

dualistic, however many descent groups may be united in it, and to a terminology of kinship and affinity congruent with it. The supposed system which we set out to examine comprises not three lines but only two (see Fig. 5).

Now this is a straightforward dual organization — or two-section system as I should prefer to call it — in which FZD is structurally identical with MBD.[34] This has the consequence that marriage with a woman of the category of FZD as distinct from MBD cannot be prescribed. There can still be a *preference* within this system for an individual bilateral cross-cousin who is the "true" FZD; but this is not a *prescription* with structural entailments for the entire society, nor can it be the basis of a system of relations between lines. Preferential marriage with the FZD may well have the asymmetrical features and social consequences of Lévi-

34 This is clear from the moment one abandons the feature of alternation, and is discernible in Fig. 3, but I have thought it best to work out the argument explicitly by the simplest steps (cf. fn. 30).

Strauss's "short cycle" in the relations between individual families,[35] but these characteristics and relations are not and cannot be those of a total system.

I conclude therefore that there is no "discontinuous" type of exchange-system. A prescriptive marriage system of affinal alliances between lineal descent groups based on exclusive patrilateral cross-cousin marriage cannot exist.

V

Although the aim of this note is effected with the completion of the formal analysis, some empirical observations may be of further interest.

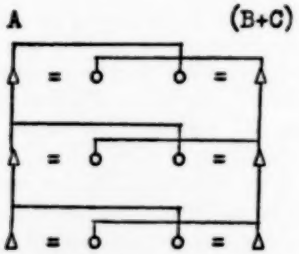

FIG. 5. Final reduction to a two-section system.

In his review of Homans and Schneider's book Eggan wrote that "we have no examples of a fully functioning system [based on FZD marriage] comparable to that for matrilateral cross-cousin marriage";[36] and I also wrote at the same time that "there is no sure evidence that exclusive patrilateral cross-cousin marriage is practised by any society at all."[37] It would be a long matter to analyze fully the accounts of societies in which marriage with the patrilateral cross-cousin is "practised," but a brief survey of those cited by Homans and Schneider and of certain others with the same "preference" leads to a clear conclusion. Note, in considering

35 Compare my note on a possible two-section system in eastern Indonesia, where I observe that the relations between families may be characterized by Lévi-Strauss's "short cycle" even though the affinal relationship between lineages is symmetrical and the exchange of women reciprocal (1956b, p. 289). Naturally, preferential FZD marriage can be associated with other types of society and used for various ends (to manipulate a matrilineal rule of inheritance, e.g., or succession to political title, in favor of one's patrilineal descendants) but the same conclusions apply even more strongly to them.

36 Eggan, 1956, p. 403.

37 Needham, 1956a, p. 108. I must acknowledge that I was wrong when I wrote that "in theory" exclusive patrilateral cross-cousin marriage is possible.

the cases below, that if a patrilateral prescriptive system exists the FZD may be expected to be categorically distinguished from the MBD and that marriage with the MBD must be forbidden; remembering, however, that even these features are not necessarily signs of the certain existence of such a system in themselves.

The Haida are divided into exogamous matrilineal moieties, each comprising about twenty clans. The "preferred marriage is with a *sq'an* [FZD] of the same generation, though not necessarily a first cousin." It appears that only a cousin in the father's clan is *sq'an*. A man ordinarily marries a FZD, but if he is heir to a chieftainship he "usually marries a daughter of the maternal uncle whom he is to succeed."[38] The situation is not completely clear, but it is certain from this information that there is no prohibition to marriage with the MBD such as would be necessary to make the preference for the FZD into a prescription.

The Tlingit are also divided into exogamous matrilineal moieties, members of each of which regard each other as siblings. The ideal marriage links a man and his father's clan or lineage, and "preferably" he marries "the father's sister or her daughter." This type of marriage is called a "royal marriage" as it is considered especially appropriate to the aristocracy. The dual organization is stressed to the extent that the paternal aunt is "ideally" the mother's brother's wife; and the latter may be married as a widow in order to succeed to her deceased husband's title. Also, a "young woman of rank may expect to marry her father's heir, that is, her paternal uncle or her cross-cousin (father's sister's son)"; so it is even more plainly evident that there is no ban on MBD marriage and no prescription to marry the FZD.[39]

The Sherente of South America are divided into exogamous moieties, each consisting of four clans. They distinguish terminologically between the MBD and the FZD, and "a man may marry his father's sister's daughter, but not his maternal uncle's." Yet there is "a tendency to marry close matrilineal kin so long as the prohibited degrees are avoided."[40] It is not possible to tell from the monograph what are the extensions within the affine-moiety of the two types of cross-cousin. It may be that the MBD prohibition applies to the mother's clan and prevents a man marrying a woman from the same clan as his father, thus preventing an exclusive reciprocal connubial relationship between two clans at the expense of general affinal solidarity. This would be consistent with the marked ingenuity of Sherente social structure, which constantly counters by one institution the possibility of permanent segmentation occasioned by another. This arrangement, however, given

38 Murdock, 1934, p. 364; 1947, pp. 235, 250.

39 De Laguna, 1952, pp. 2, 5-7.

40 Nimuendajú, 1942, pp. 25-26.

the kinship terms recorded by Nimuendajú,[41] would be the maximum extension of the MBD prohibition: it removes one clan from the range of an individual's potential spouses, but it does not thereby prescribe marriage with the FZD or set up a system of relations between groups.

The Ila permit marriage with the FZD and prohibit it with the MBD, but the siuation amounts to no more than this. The same terms of address are used for both the matrilateral and the patrilateral cross-cousin, "but though I address my mother's brother's daughter as *mwinangu* ('my wife') and she addresses me as *mulami* ('my husband') it does not follow that commerce between us would be allowed. Of the four possible cousin-marriages, therefore, the Ba-Ila nowadays allow only one. I may marry my father's sister's daughter, but as, according to the rules of relationship, she is *mukwesu* [= sister] to me, I ought not to marry her."[42] Quite clearly there is no prescriptive FZD marriage, and one may perhaps infer that formerly this was even more certainly the case.

The matrilineal Pende of the Belgian Congo regard marriage with the FZD as the preferential marriage *par excellence,* but there are other forms of preferential marriage, namely with the mother's brother's daughter and the sister's daughter. When a man cannot get a wife from his father's clan he may turn for one to his mother's brother. In one area marriage with the MBD is forbidden, but even in this case the alternative source of a wife is the mother's father's clan. Cross-cousins *(isoni)* address each other, when of different sexes, as "my wife" and "my husband," further underlining the fact that however strong the FZD preference there can be no patrilateral system.[43]

The Maria Gond of the central provinces of India appear to recognize some special right to marry the FZD. Russell writes that the marriage of first cousins is considered "especially suitable." A man has a right to his sister's daughter for his son "on the ground that his family has given a girl to her husband's family, and therefore they should give one back," and a token compensation is paid to him if the girl is married elsewhere. He also writes, though, that formerly marriage with the MBD was the "most common" form. By his account the Maria are divided into moieties.[44] Grigson, however, describes the situation rather differently. "The commonest form of marriage is between a daughter and her mother's brother's son (brother being . . . used in the extended sense). But it has also been

41 These are puzzling in some respects, and it is not evident how they can be related to the social structure described. Mr D. H. P. Maybury-Lewis, who has conducted field research among the Sherente and is at present (1957) again with them, informs me that Nimuendajú's ethnography, particularly the information relating to kinship, is not wholly reliable.

42 Smith and Dale, 1920, vol. 1, pp. 317-319.

43 De Sousberghe, 1955, pp. 16, 36, 48.

44 Russell, 1916, vol. 3, pp. 65, 71.

extended to cover marriages between a girl and her father's sister's son. . . ." If a girl remains unbetrothed, her parents may ask either her MBS or her FZS to carry her off. Among the Bison-horn Maria there is the right mentioned by Russell. If a girl marries a man other than her mother's brother's son the latter (unless he has forfeited his right by marrying another girl) is entitled to compensation from her husband. They also have a further stipulation, that marriage must be with a girl from a clan already affinally related to the father's clan. The Hill Maria, however, do not recognize a right in the FZD. "For them the free choice of the youth and girl is far more important." Of 105 Hill Maria marriages 54 percent[45] were between cross-cousins: the remainder began new affinal relationships, "at least between two contracting families, if not between the clans." There is apparently no ground for believing that moieties exist, and the clans are divided into five phratries, though there are signs in the kinship terminology of a dualistic division into kin and affines. The term *mandari* denotes both the FZD and the MBD, so there cannot be a categorical prescription to marry the FZD. Even though there are evidently traditional affinal alliances between clans, and a preference, which may become a right, for marriage with the FZD, there is quite clearly no prescriptive system.[46]

The matrilineal Nangudi Vellalar of southern India have a patrilateral cross-cousin marriage rule and a dislike for marriage with the cross-cousin who is both matrilaterally and patrilaterally related. The neighboring Mudukkulattur, also matrilineal, require more stringently that the FZD shall be married, and if there is none a classificatory relative "of the same category" is married, mainly the FMZDD or the FMMZDDD. The terminology, however, is Dravidian in both these societies, and there is only one terminological category of cross-cousin — the bilateral cross-cousin. Within this scheme there is evidently a strong preference or even prescription for an individual (the "obligation is purely individual" except among the Mudukkulattur) who, while terminologically a bilateral cross-cousin, is genealogically related through the father. It is thus not possible in this society to have a categorical prescription requiring marriage with the FZD to the exclusion of the MBD. Dumont further states that the lineage as a whole has no say in any particular marriage, and that "the system does not exist as a whole."[47] This is a

45 The figure of 57 percent on p. 234 is evidently a misprint.

46 Grigson, 1949, pp. 234-247, 308. The Omanaito recognize the right of a man to marry his FZD; and this marriage is said to be customary among the Poroja also, but cannot be claimed as a right "for the principle of free love is recognised among them" (Thurston, 1909, vol. 5, p. 444; vol. 6, p. 210). There is too slight evidence in the ethnography to say whether there is anything more to the former than a preference.

47 Dumont, 1957, pp. 12, 14, 18, 22.

situation of considerable complexity which deserves to be more closely examined; but for our present purpose it is clear that there is certainly no prescriptive marriage system resembling the hypothetical system with which the formal analysis was concerned, nor a system of relations between groups remotely resembling the solidary characteristics of matrilateral cross-cousin marriage.

In the Trobriands the woman "most suited" in native eyes to be married is the FZD, or the FZDD if the former is too old (especially in infant betrothal). The instance of this selected by Malinowski as illustration is the marriage of a chief's son. However, "a boy and girl who are the children of two brothers . . . may marry if they like," i.e. the FBD may also be married. Also, MBD marriage "is not incestuous, but is viewed with disfavour and happens only rarely" — but it is evidently possible and is certainly not prohibited as it would have to be in a patrilateral prescriptive system.[48]

The matrilineal Tismulun of the New Hebrides (listed by Homans and Schneider as a patrilateral case) may marry either the FZD or the MBD. "Such marriages were by no means compulsory but were approved as correct." One informant's verbatim account of the marriage rules describes how he looks first at the MBD, then at the FZD, and makes his decision on the basis of which he happens to like. If neither, then preferably a woman "from his father's place" (the Tismulun being patrilocal). The ascription of patrilateral marriage to them is based on the contradictory statement that marriage with the MBD "is, it seems, to be prohibited."[49] These data are from random notes posthumously edited. Their general tenor, whatever their particular reliability, is in favor of permitted marriage with the MBD. Moreover, analysis of the kinship terms (that for MBD, incidentally, is not recorded at all) points to MBDD marriage and the possibility of a six-section system.

The Kandyu of Cape York Peninsula in north Australia are said quite clearly to marry the FZD and taboo the MBD. There is a general absence in the area of named moieties, but Radcliffe-Brown's map indicates that there are patrilineal moieties, whether or not they are named.[50] In a letter to Homans and Schneider Radcliffe-Brown expressed "doubt that the Kandyu rule is really patrilateral: a man may marry the daughter of his father's younger, but not older, sister, and the daughter of a classificatory, not true, mother's brother."[51] For personal principles in their own research Homans and Schneider decided not to use Radcliffe-Brown's

48 Malinowski, 1929, pp. 81, 86-87.
49 Deacon, 1929, pp. 483, 486-487.
50 McConnel, 1939-40, pp. 72, 437; Radcliffe-Brown, 1931, map 1.
51 Homans and Schneider, 1955, p. 48.

statements, but it seems to me unlikely that such detailed evidence should be quite unreliable, especially from such an authority. Because of this, and in view of the lack of detailed Kandyu ethnography, I conclude that there is little ground for believing that the Kandyu actually prescribe marriage exclusively with the FZD.

Finally, the Tuva (Uriankhai) of central Asia, on the borders of Outer Mongolia, are reported to oblige a man to marry his FZD. According to Potanin they are divided into clans[52] which are apparently patrilineal.[53] In a single anecdotal context a girl is said to be under some obligation to marry her mother's brother's son:

"Whom did your sister marry, then?"

"Her mother's brother's son."

"Is she permitted to do that?" *(Darf sie das?)*

"She ought to." *(Sie soll es.)*[54]

That is, judging by this one instance, FZD marriage is perhaps in some degree required. The source, however, is a rather superficial account of a journey and not the result of ethnographic investigation, and the inferred rule rests on one incident. Moreover, since the author records no kinship terms of the people he visited, there is no indication that any terminological distinction is made between patrilateral and matrilateral cross-cousins; so the reply may simply have meant that the woman had to marry a cross-cousin to the exclusion of a parallel cousin.

This conclusion is supported by the information given by Yakovlev. He reports merely that "cousin-marriages" are preferred, with the qualification that marriage with a female cousin older than oneself is forbidden. The kinship terms he lists accord with a patrilineal descent system: there is a distinction between patrilateral and matrilateral relatives, and parallel cousins are identified with siblings and distinguished from cross-cousins. The term for FZD is most unfortunately not given. The terminological equivalences are in certain respects puzzling to someone ignorant of the language, but it is quite clear that there are no equivalences diagnostic of or even concordant with any type of prescribed marriage.[55]

52 Czaplicka, 1914, p. 55.

53 Carruthers, 1913, vol. 1, p. 222.

54 Mänchen-Helfen, 1931, p. 84.

55 Yakovlev, 1900, ch. vi. I am indebted to Professor D. A. Olderogge of the U.S.S.R. Academy of Sciences, Leningrad, for this reference; and to Mrs Mary Holdsworth of the Institute of Commonwealth Studies, University of Oxford, for her translation from the Russian. Professor Olderogge has also been so kind as to make enquiries on my behalf among his colleagues and tells me that neither Mr L. P. Potapov, an ethnologist expert in the study of kinship in Tuva, nor Mr A. D. Gratch, an archaeologist recently returned from Tuva, knows of the supposed marriage regulation (personal communication, 27 January 1958.) I am grateful to my Russian colleagues for their friendly services in this matter.

One clear contrary instance in the literature would have indicated a flaw in the formal analysis; but, so far as I can discover, no such instance is recorded in the ethnography of any area. I conclude that a prescriptive marriage system based on exclusive patrilateral cross-cousin marriage does not in fact exist.

SUMMARY AND CONCLUSION

Patrilateral cross-cousin marriage as a form of marriage regulation may be considered as a preference or as a prescription. Practised as a preference it produces merely a proportion of the total marriages, dependent on individual desires, directed to ends and related to institutions which may vary from instance to instance and from society to society. Such preferential marriages are contingent to the social structure and do not secure a total solidarity based on a system of enduring affinal ties between descent groups. Such a general affinal solidarity can be effected only by a prescriptive rule of marriage. A patrilateral prescriptive marriage system would require an alternating exchange-relationship between the component descent groups of the society which are corporately concerned in the marriages, but there is no theoretically satisfactory means of effecting this alternation. Without such an alternation it is not possible, with this rule, to make a structural distinction between the patrilateral and the matrilateral cross-cousin; and without this distinction the prescription is not applicable. A prescriptive marriage system based on exclusive patrilateral cross-cousin marriage cannot exist in theory and does not exist in fact.

There are, therefore, and can only be, two basic modes of exchange of women by the prescriptive regulation of marriage: direct (with section-systems) and indirect (with matrilateral cross-cousin marriage).

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AN EXPERIMENTAL STUDY OF LANGUAGE AND NON-LINGUISTIC BEHAVIOR[1]

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THIS EXPERIMENT was designed originally to test the Sapir-Whorf hypothesis that the structure of a language conditions non-linguistic behavior and thought.[2] That it is something less than a clear test of this proposition is related to the fact that neither Sapir nor Whorf stated the hypothesis in a form that could be proved or disproved in a single experiment.

Most previous investigations have consisted of an *ad hoc* demonstration that, in a given situation, some aspects of language could be shown to be congruent with some, usually very general, aspects of non-linguistic behavior. The point at issue is whether accurate predictions about relatively concrete and specific behavior in an experimental situation can be derived from the examination of language structure. The present study thus differs from most earlier work in three major respects: (1) the method of investigation is experimental rather than observational; (2) the predictions are made from present language to future behavior; (3) the behavior studied consists of specific instances rather than large scale patterns.

The general proposition that the language of a group is not functionally independent of non-linguistic factors would certainly meet with little objection. Disagreements arise at the point where attempts are made to specify the nature and direction of this relation. Both Sapir and Whorf usually wrote as if language were the initiating factor. Given this view, a convenient basis for prediction lies in the well-known fact that languages categorize the universe and further that referents united in one language are separated in another. This being the case it should fol-

1 This paper is revised from a University of New Mexico Ph.D. dissertation in Anthropology written under the direction of Stanley Newman to whom I am indebted for both specific advice and general encouragement. The personnel of the United Pueblos Agency and the Albuquerque Indian School were most coöperative and made a special effort to procure subjects with the proper linguistic background in addition to providing interpreters and space for the administration of the experiment. Charlie De Jolie acted as the Navaho linguistic informant and provided the formal subject interview which contributed materially to the experiment. Roger W. Weldon offered many helpful suggestions on the experimental design and the statistical interpretation of the results. This investigation has also benefited substantially from discussion with the author's colleagues on the Southwest Project in Comparative Psycholinguistics sponsored by the Social Science Research Council.

2 J. B. Carroll (ed.), *Language, Thought, and Reality: Selected Writings of Benjamin L. Whorf (New York, 1956);* D. G. Mandelbaum (ed.) *Selected Writings of Edward Sapir* (Berkeley, 1949). A recent evaluation of this position is found in Harry Hoijer (ed.), *Language in Culture* (Chicago, 1954).

low that referents classified together linguistically are likely to be classified together non-linguistically. This can be stated more precisely as follows:

If it is highly probable that referents x and y will elicit the same linguistic response, this will increase the probability that they will elicit the same non-linguistic response. Conversely, if they elicit different linguistic responses this should lower the probability that they will elicit the same non-linguistic response.

Extending this to a cross-language comparison to develop a testable hypothesis:

If Language A unites referents x and y and Language B separates them, then speakers of Language A should be more likely than speakers of Language B to exhibit the same non-linguistic response to them.

In this formulation a "linguistic response" involves the oral production of speech by an informant while a "non-linguistic response" refers to any other behavior. It is not obvious that such a rough distinction can readily classify every instance of human activity but it does serve to separate the particular behaviors used experimentally. "Elicit" refers to a procedure where an informant is shown potential referents and asked to respond verbally (i.e. "name them") or non-verbally (i.e. "divide them into groups"). Referents that elicit the same response are said to be "united," either linguistically or non-linguistically, while those which elicit different responses are "separated." Linguistic responses are the "same" if they contain the same phonemes and morphemes in the same order as previously defined by a linguistic analysis. "Same" or "different" for the non-linguistic responses refers to the alternatives present in the experimental situation.

The deduction of specific predictions from this general hypothesis is contained in a later section following a description of the experimental design. It should be stated in advance that the writer was thoroughly convinced that the hypothesis was sound and expected highly significant results.

EXPERIMENTAL DESIGN

This study focuses on the Athapascan-speaking Navaho of New Mexico and Arizona. The structural statement which provides the basis for predicting experimental behavior is that of Hoijer who states:

The Athapascan languages employ verb stems that refer not to a characteristic type of event, such as *stand* or *give* or *fall*, but to the class of object or objects conceived as participating in such an event, whether as actor or goal. . . .[3]

3 Harry Hoijer, *Classificatory Verb Stems in the Apachean Languages* (International Journal of American Linguistics, vol. 11, pp. 13-23, 1945), p. 13.

Of the formally distinct categories described by Hoijer, three were selected for inclusion in the experiment: "long," "rope-like," and "fabric-like." These will henceforth be called "slender-rigid," "slender-flexible," and "flat-flexible," terms which make more obvious the physical characteristics of their referents. It should be noted that the English labels attached to these classes are a good, though not a perfect, approximation of their actual content in the case of the classes used experimentally. The practical consequences of this system are that one must use different stems in Navaho for saying "I pick up a cigarette," "I pick up a rope," and "I pick up a blanket." In his verbal behavior a Navaho is thus in the position of having made very frequent distinctions among objects on the basis of their form. He should, therefore, make these distinctions more readily in his non-verbal behavior than will a native speaker of a language not containing such obligatory distinctions.

A brief overview of the experimental design should make the detailed descriptions of procedure which follow more intelligible. Three groups of subjects were used: native speakers of Navaho, of English, and of a number of non-Athapascan American Indian languages. These were asked to divide sets of four objects into two groups of two objects each. Divisions could be made on the basis of the Navaho verb categories described above or on other grounds such as function or color. The primary expectation was that Navaho subjects would make significantly more divisions on the basis of form than would members of the other two groups. A central methodological requirement was that the procedure be as non-linguistic as possible. That is, an effort was made to prevent subjects from realizing that the experimental task had any connection with their language.

SUBJECTS

Sixty subjects were divided into three groups of twenty each. Sixteen high school students at the Albuquerque Indian School and four students at the University of New Mexico, all native speakers of Navaho, comprised the Navaho group. This group contained a range of English ability from none to almost perfect command. The group consisted of eleven females and nine males whose ages ranged from fourteen to thirty years and whose mean age was 17.9 years.

Sixteen students from the Albuquerque Indian School and four students of the University of New Mexico, all native speakers of non-Athapascan Indian languages, constituted the Pueblo group. This group contained a range of English ability from fairly good to almost perfect command and consisted of twelve females and eight males. Ages ranged from nine to twenty-eight years with a mean age of 16 years. The members of this group were all from Pueblos in New Mexico and

were distributed as follows: Isleta–3, Zuni–3, Laguna–3, Acoma–3, San Felipe–2, Santa Clara–2, San Ildefonso–2, Taos–1, and Sandia–1.

The English group consisted of twenty students at the University of New Mexico. All were native speakers of English and all were monolinguals with the exception of one subject who had spoken French for a number of years. The group contained six females and fourteen males. Ages ranged from seventeen to thirty-four years with a mean age of 21.75.

The types of subjects were chosen with several ends in mind. It had been demonstrated that the verb categories under consideration were obligatory in Navaho but not in any of the other languages represented. A minimum cross-cultural requirement could have involved a contrast between a Navaho group and a non-Navaho group. The English-Navaho comparisons would have satisfied this condition, but it seemed necessary also to have a non-Athapascan-speaking Indian group in order to insure that the results gotten would not merely reflect an Anglo versus Indian or majority-minority difference. The Pueblo group also acted as a check against the fact that the experimental materials were probably not equally familiar to Indian and non-Indian subjects.

MATERIALS

The materials consisted largely of objects common to American culture. There were forty-eight objects grouped in twelve Items of four objects each. The Items were further classified in four Types of three Items each. Objects are symbolized by small letters, Items by Arabic numberals, and Types by Roman numerals in this presentation. The Navaho verb categories are represented by SR (slender-rigid), SF (slender-flexible), and FF (flat-flexible); these are the categories reflected in the "form" classification indicated below. The category contrast present in each Item is described within the parentheses following the Item number. The "x," "y," and "z" notations refer to the three sorts possible for each Item and are defined as follows: "x" equals an ab/cd division, "y" an ac/bd division, and "z" an ad/bc division. The "y" division correlates with the Navaho verb categories in Types I, II, and III.

Type I: Three bases for classification [(x): Function or Material; (y): Form; (z): Color.]

Item 1: (SR vs. SF): a. blue ruler; b. green tape measure; c. green candle; d. blue electric cord.

Item 2: (SF vs. FF): a. blue rubber band; b. green rubber coaster; c. green cloth shoelace; d. blue handkerchief.

Item 3: (SR vs. FF): a. blue pencil; b. green sheet of paper; c. green shoelace; d. blue washcloth.

Type II: Two bases for classification [(x): Function or Material; (y): Form; (z): None.]

Item 4: (SR vs. SF): a. metal bolt; b. flexible metal wire; c. cigar; d. string of artificial pearls.

Item 5: (SF vs. FF): a. metal spring; b. aluminum foil; c. strand of yarn; d. irregular piece of cloth.

Item 6: (SR vs. FF): a. metal needle; b. handkerchief; c. paper straw; d. sheet of paper.

Type III: One basis for classification [(y): Form; (x) and (z): None.]

Item 7: (SR vs. SF): a. red ruler; b. gold colored chain; c. wooden paint brush; d. length of rope.

Item 8: (SF vs. FF): a. red rubber mat; b. metal pull-chain; c. sheet of paper; d. length of ribbon.

Item 9: (SF vs. FF): a. metal nail; b. sheet of cellophane; c. wooden match; d. irregular piece of cloth.

Type IV: No basis for classification [(x), (y) and (z): None.]

Item 10: a. metal padlock; b. yellow crayon; c. plastic sphere; d. cork.

Item 11: a. leather wallet; b. plastic disc; c. rubber band; d. metal hook.

Item 12: a. sheet of plastic; b. rubber eraser; c. small stone; d. bells tied on a ribbon.

The Item Types were intended to contrast the Navaho verb categories with other ways of classifying the materials. They varied in the number of alternative possibilities placed in the materials by the experimenter.

PROCEDURE

The basic procedure required the subject to divide the four objects in an Item into two groups of two objects each. Subjects were seated at a table facing the experimenter and given the following instructions:

I'm going to put four objects along this line in the center of the table. I want you to look them over and as soon as you become familiar with them, place two over here on the right and two over here on the left. You may find that they divide easily in two groups and, if you don't notice a natural pairing, and there may be none, please make a division anyway. There is no right division; I'm interested only in your own personal opinion. Now we'll have a couple of practice trials to give an idea of how this is going to work.

Each subject was given three pre-experimental trials to insure his understanding of the instructions. The writer instructed all subjects except eight monolinguals in the Navaho group. In these cases the procedure was explained by regular Navaho interpreters employed at the Albuquerque Indian School. Each subject was given all twelve Items with the order of Items and the placing of objects from top to bottom on the table top being randomly varied. Subjects were not given a speed orientation.

Two scores were taken for each subject on each Item: latency of response in seconds, and the division of objects (x, y, or z). In addition to the scores describing experimental performance the linguistic background of each subject in the Navaho and Pueblo groups was obtained in an interview immediately following the experiment. The subject was asked to estimate for each period in his life whether he had spoken his native language all of the time, most of the time, half of the time, less than half of the time, or none of the time. This resulted in a five-cell table for each subject which contained the absolute number of years he had spent speaking only his native language, mostly his native language, etc. Weights of 1.00, .67, .50, .33, and 0 were assigned to the cells and the sum of the cells was then divided by the subject's chronological age to obtain his Language Experience Index or L. E. I.[4] The scores on this index can range from .000 (never had spoken language) to 1.000 (had spoken language in question exclusively). Although this is a very rough way of rapidly estimating the linguistic experience of an individual, it should correlate fairly well with degree of bilingualism as measured by other methods. It may also be regarded as a measure of acculturation, as experience with language inevitably implies contact with the culture that uses it. In this context an L. E. I. of 1.000 would describe a relatively, but not necessarily completely, unacculturated person and degree of acculturation would increase as L. E. I. decreased.

There was a detailed interview with one Navaho subject on his reaction to the experiment and his interpretation of the whole situation.

EXPECTED RESULTS

A number of hypotheses were made in advance of the experiment. These are of three types: design validation, sorting, and latency.

Design Validation

1. The three groups should not differ significantly among themselves nor should any group depart significantly from randomness in the sorts made on Item

4 The quantification of this index was suggested by Dr Charles Solley of the Menninger Foundation.

Type IV. This Type was designed to be a random array of objects and all groups should sort it randomly.

2. All three groups should have longer latencies for Item Type IV than for Types I, II, and III. The random Items, with no obvious classifications, should require a longer response time.

Sorting

3. The Navaho group should make significantly more "y" sorts than the other groups for Types I and II.

4. The number of "y" sorts made within the Navaho group should correlate positively with the L. E. I., but this correlation should either not exist or exist to a lesser degree in the Pueblo group. This suggests that the more experience a Navaho subject has had with his language, the more likely he is to sort in terms of its categories. The Pueblo, on the other hand, should not show this correlation, since it is presumed that their native language experience has no systematic connection with the experimental materials.

Latency

5. The Navaho group should not differ in latency among Types I, II, and III, while the English and Pueblo groups should have significantly longer latency for Type III than for Types I and II. The Navaho should have an equally available solution for all three types whereas the other groups should find Type III, with only a form solution, more difficult.

6. Navaho latencies for "y" sorts will be less than "x" or "z" sorts for Types I, II, and III, and this difference will be greater than similar differences, if such exist, within the English and Pueblo groups. This, and the other hypotheses involving latency, are based on the common psychophysical assumption that a difficult task will be associated with a longer response time.

RESULTS

The results are organized in terms of their bearing on the hypotheses put forth in the previous section. Additional results of interest are also presented. Table 1 summarizes the sorting and latency results.

1. Chi-square tests on Type IV revealed no significant differences among the experimental groups and no significant variations from randomness in the sorting of any one group. This hypothesis is confirmed.

2. All groups had longer latencies for the random Items of Type IV than for the Items with built-in solutions, Types I, II, and III. An Analysis of Variance

compared the Types with regard to latency for each group.[5] The English and Pueblo groups had F's significant at the .01 level of confidence while the Navaho F was significant at the .02 level. Thus the trend of a latency increase through the sequence of Types is validated. However, the Navaho latency for Type IV does not

TABLE 1
Sorting

Type	*Group*	*Sort*			*Latency (in seconds)*
		x	*y*	*z*	
I	English	34	16	10	190
	Navaho	33	17	10	340
	Pueblo	41	12	7	337
II	English	38	21	1	251
	Navaho	39	19	2	370
	Pueblo	44	13	3	401
III	English	3	51	6	303
	Navaho	12	46	2	626
	Pueblo	17	34	9	484
(I, II, III)	English	74	88	17	744
Total	Navaho	84	82	14	1336
	Pueblo	99	62	19	1222
IV	English	15	21	24	461
	Navaho	11	29	20	738
	Pueblo	13	26	21	694

differ significantly from the latency for Type III, while this difference is significant for the other two groups. This hypothesis is confirmed.

3. Chi-square tests were run on the sorting results for Type I, Type II, and the combined total of Types I and II, and in no case did significant differences exist among the three groups although the Pueblos consistently made fewer "y" sorts than the other groups. An unexpected result was the almost identical Navaho and English performance on these two Types. This hypothesis is not confirmed.

4. Product-moment correlations (r) were run between L. E. I. and number

5 The Analysis of Variance permits one to evaluate the differences among a group of means. The resulting value (F) can be tested for significance and the probability of the differences having arisen by chance can be stated. See Allen L. Edwards, *Experimental Design in Psychological Research* (New York, 1950) for a full expanation of this procedure.

of "y" sorts for the Navaho and Pueblo groups. The Navaho correlation (+ .48) was significant at the .05 level while the Pueblo correlation (+ .19) was non-significant. The difference between the r's was significant at the .05 level using a one-tailed test. This hypothesis is confirmed.

5. The Analysis of Variance described under Hypothesis 2 showed a Navaho latency increase for Type III as against Types I and II significant at the .01 level. The same difference for the other groups is significant at the .05 level. This hypothesis is not confirmed.

6. Mean times for "y" sorts as against "x" or "z" sorts were obtained for each group. Both the Navajo and English groups took less time for "y" sorts than for "x" or "z" sorts but these groups could not be separated by differences in relative latency. The Pueblo groups tended to have longer response times for "y" sorts than for "x" and "z" sorts. The results here are much like those under Hypothesis 3, with the Navaho and English groups falling together and the Pueblo group standing apart.

DISCUSSION

The confirmation of the design validation hypothesis (1, 2) on the presumed random sorting and increased latency for the objects in Type IV indicates that the subjects reacted to the Items in terms of the possible solutions placed there by the experimenter. This is further supported by the sorting results for Types I, II, and III where the built-in solutions were chosen far more often than the alternate possibilities where no obvious classification existed.

The central hypothesis of the study has been stated earlier:

> If Language A unites referents x and y and Language B separates them, then speakers of Language A should be more likely than speakers of Language B to exhibit the same non-linguistic response to them.

Of the predictions of experimental results only the correlation between L. E. I. and number of "y" sorts in the Navaho and Pueblo groups occurred as expected and this single affirmative result is weakened by absence of the English group in the comparison. The direct comparison among the three groups with respect to both sorting and latency failed in every case to produce the expected differences (3, 5, 6). Clearly, the hypothesis must be rejected. This amounts to saying that, given a known linguistic category, it cannot be reliably predicted that non-linguistic behavior will correlate with it. The difficulty lies in specifying what "united" and "separated" mean in a concrete case. This arises from the fact that it is almost impossible to produce two objects that can be linguistically classified in only one way. The post-experimental interview with a Navaho informant who was asked

to name the objects in the experiment and also to use them in the frame, "I pick up a ——," produced information which indicated that the verb categories were not the only bases for classifying the objects in terms compatible with prior linguistic experience with Navaho. It was sometimes the case that, in addition to the built-in form solution, two of the four objects in an Item had the same name in Navaho and could thus be said to be classified together linguistically on a lexical basis.

If every object and event participates in a number of intersecting linguistic categories one can never make the absolute statement, "Navaho does it this way," as if the language systematically cut the universe up into neat and mutually exclusive segments. It is rather the case that any language has a variety of alternative ways of classifying stimuli. If languages, then, can do anything, how can one possibly make meaningful predictions? A way out of this dilemma may lie in the distinction between Language and Speech or between language structure and language behavior. The structure is the abstract statement of the potentialities of the system made by a linguist. Language behavior is the observed verbal activity which such a statement describes. It is evident that a correlation will exist between the two if the structural statement is adequate. This will not be a perfect correspondence, since a process of abstraction can never take account of every variation in the data which form its basis. A structural description, furthermore, consciously ignores certain aspects of language behavior such as frequency of occurrence. Newman has stressed the importance of actual selection from structural alternatives in observational studies of relations between language and non-linguistic patterns of behavior.[6] In the case of experimental investigations relative frequency will probably be an even more important variable; perhaps the single most significant factor. This suggests that experimentation should be preceded by a thorough investigation of actual usage on the language behavior level. Several ways of grouping particular stimuli may be present in the structure; the experimenter must know in what proportion these are actually used.

It is probable that different linguistic structures have different potentials for indexing non-linguistic behavior. The results of this study indicate that direct predictions from structure, while they may correlate with large scale cultural patterns, are not likely to predict more concrete behaviors accurately unless supplemented by information on frequency.

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6 Stanley Newman, "Semantic Problems in Grammatical Systems and Lexemes: a Search for Method" (in Harry Hoijer, ed., *Language in Culture*, pp. 82-91, Chicago, 1954).

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